THE BUILDER

A JOURNAL FOR THE ARCHITECT AND FOR ALL INTERESTED IN THE CONSTRUCTIVE AND DECORATIVE ARTS.

VOL. CV.—No. 3688. OCTOBER 10, 1913.

MODERN ARCHITECTURE AND THE CRAFTSMAN.

ONE of the great essentials to progress in any direction is that enthusiasm which is not dissipated in words but results in action; but even such enthusiasm is unavailing unless it is subservient to a logical conception founded on the actual facts which modify and govern our daily life.

This is pre-eminently an age of words, and the politician or writer who can express himself eloquently will never lack disciples, whether in the realm of religion, politics, or art. More than ever the unthinking many refuse to exercise their reason, finding consolation and rest in the shibboleths of the glib charlatan and the eloquent sentimentalist.

We console ourselves with such statements that "all things work together for good," we deliberately avoid conclusions which we find to be unpleasant, and we assume in ignorance that we are in some way better than our forefathers because exceptional men have advanced the limit line of knowledge in different directions, reaching conclusions which we dimly understand, without any mental conception of the processes by which these conclusions have been reached.

In matters of art, on the other hand, we, to quote Gilbert's satire, "deliberately pooh-pooh whatever's fresh and new and declare it's crude and mean, For art stopped short in the cultivated Court of the Empress Joséphine." Before a Botticelli, as *Punch* put it, we "are mute," and last, but not least, writers like Mr. March Phillipps write as if we who are part and parcel of the twentieth century could by any effort of our own place ourselves outside the "hard conditions as this time Is like to lay upon us."

Instead of this we should realise what these conditions are and face the fact that, short of such a change as would be produced by a catastrophe like the wholesale depopulation of the world, bringing with it a relapse into primitive barbarism, the destruction of machinery and of accumulated wealth, the overthrow of all that has produced modern life, we cannot go back to conditions, however admirable, which produced the art of the past.

It is, of course, arguable that modern conditions are inimical to artistic development, and that under such conditions the arts, especially those which are most influenced by modern conditions, are impossible. If this be so, it is better to face it and realise it than to bury our heads in the sand and refuse to recognise the realities rendered inevitable by the changed conditions of our lives.

The study of the work and methods of the mediæval builders is a subject of the greatest human interest. The possibility of building new cathedrals or any great buildings on similar lines is as feasible as would be the attempt to build up and inspire with life the *ichthyosaurus;* and the latter is a task which we should be surprised to hear had been seriously contemplated by the most enthusiastic of scientists. Mr. March Phillipps, in a characteristic article in the *Contemporary Review*, entitled "The Two Ways of Building," divides architecture into two divisions—"creative" and "imitative art"; the former is, broadly speaking, what he admires, the latter what he condemns. We read, again, sentences the gist of which is familiar to us:—"The reversion of modern life from aristocratic to democratic is making it impossible for the stately Renaissance to subsist among us. Already it feels the breaking up under its feet of all that once supported it. The courtly etiquette and love of display which gloried in suites of gilded apartments and a coldly formal ostentation have quite departed. The opportunities of the architrave and pediment, of acanthus-leaved capital and classic friezes are gone by." Instead of this we are told that "the opportunities of a very different order of art are but just dawning. The demand of modern life is for an architecture direct and simple, strictly adapted to the purposes for which it is designed, and entirely emancipated from artificiality and affectation."

And yet in spite of these sounding sentences we are living in days when the greater buildings erected, both here and in America, are showing a closer approximation to that classicism of treatment which Mr. Phillipps condemns!

Is it that the architect, both here and abroad, is to be swept away like the French aristocrats by a revolution, to be replaced by the "master builder," who alone finds favour in Mr. Phillipps' eyes? We confess we do not see any signs of such a movement, and we believe the wish is father to the thought. We hear that "modern life itself is inclining to withdraw its support from academic conception of art," but our view is that so-called modern life is, if anything, to be described as beginning to take an interest in art, and is inclined rather to adopt the suggestions of those who speak with some authority in the matter than the reverse.

We learn of mediæval building that "it is the creation of the sweat and labour of working men, and every iota of the boldness, dexterity, and knowledge which it embodies was drawn out of the practical experience and experiments of *mere manual labour*." We italicise the latter words, as we are filled with doubt as to their exact meaning. Is it that architecture, unlike other arts, does not spring from the imagination and mind, but that what is considered by most of us at its greatest to show imagination and sublimity can be produced by mere manual labour? If we accept this position, may we not look for our great poets among the unlettered, and will not the first essential to successful achievement be the destruction of knowledge in some branch of life or another?

We are further told that the "difference between a master mason and an architect is the difference between creative and imitative art. The former depended on the knowledge he assimilated from his fellow-craftsman, and his very condition was dependent on his preserving the contact between life and art. The latter depended on foreign study and archæological research, and his very existence hung on perpetuating the division between life and art."

We are quite willing to bow to logic and admit proof, and possibly Mr. March Phillipps has such proof, but the eloquent sentences in which he enunciates his views do not convince us at present, though we understand that the way to produce architecture is to destroy the architect. We do not believe that the architect destroyed the master workman; our contention is that certain periods of civilisation brought with them new conditions, and that the directing architect was the product of these conditions, and that what we may call the "free republics of labour"—if we allow the contention that the great buildings of the past were produced, so to speak, without personal direction and by mere manual labour—were doomed to disappear as civilisation became more complex.

The great architects of the Renaissance have left us works as well as words, and those works serve to convince most of us that the new conditions did not make architecture impossible though they did produce the architect in the capacity in which we know him.

In the centuries which have elapsed since the era of the birth of the Renaissance we have been brought into contact with changed industrial conditions, which more and more emphasise the importance and necessity of greater personal

direction in the execution of architectural work, and we believe, instead of harking backwards to mediæval conditions, which we are sure cannot if we would be reproduced, we should study the changes which were brought about at the time of the Renaissance, and that the solution of some of our difficulties will be found in realising that the architect of to-day must be more unlike the mediæval master builder than was the architect of the Renaissance, and not less so.

If it could be shown that we could make trades hereditary, as they were in mediæval times, if we could recreate the trade guilds and train the working man to take pleasure in his work, apart from its value to him as a means of earning, we might find it possible to reconstitute to some extent a condition of things which would render the extinction of the architect feasible, but we are not informed in what ways this millennium can be brought about.

Nor are we informed in what manner such a building as the Municipal Buildings of New York, which we illustrate on this page, could be erected by the master workman as opposed to an architect. We can imagine that the Municipality of New York might feel somewhat disturbed for the life and property of its citizens while the master workmen were "experimenting" with the foundations of such a building, carried down, as they are, 100 ft. to the rock. Possibly the steel structure of the building might be more interesting were it carried out by the free community of workers than it is at present; but would it be so safe? And would mediæval methods enable a building like this to be put up in a short space of years?

We may be told that the pace at which building operations are carried out is unnecessary, but we imagine it would be difficult to convince the modern municipality that it was unimportant whether a city site representing an enormous rental value should remain uncovered for years to enable the master workman to slowly work out the architectural salvation of our cities.

Municipal Buildings, New York City.

Messrs. McKim, Mead, & White, Architects.

From *Construction*, Toronto.

We illustrate on the next page the accepted design for Law Courts in New York City, a building some 500 ft. in diameter and over 100 ft. high, and we would ask how such a building could be carried out, any more than the New York Buildings, under mediæval conditions.

We are conscious that we are illustrating two of the largest buildings which could be instanced, but we claim that we may fairly do so, since they indicate better than smaller examples the problems which have to be faced to-day—problems which, to our minds, give the quietus to the arguments of sentimentalists.

It may be that such structures are beyond the scope of architectural treatment, as they most certainly could not be built in the mediæval manner, but they are the buildings which arise out of the conditions and wants of our modern civilisation, and, for better or worse, we must deal with them as best we can.

We feel that too much has been said about style, and fear that the temptation to look upon what we are not in complete sympathy with as insincere and evil occupies too much of our thoughts. We believe that if the Romans had searched their inner consciousness to find the most direct and simplest expression of their needs we might have had less to criticise, but the world would have been the poorer by the losing of buildings which now show us better than anything else what Roman civilisation was, and give us the clearest conception of that resolution of purpose and largeness of thought which enabled them to become the civilising element of the ancient world.

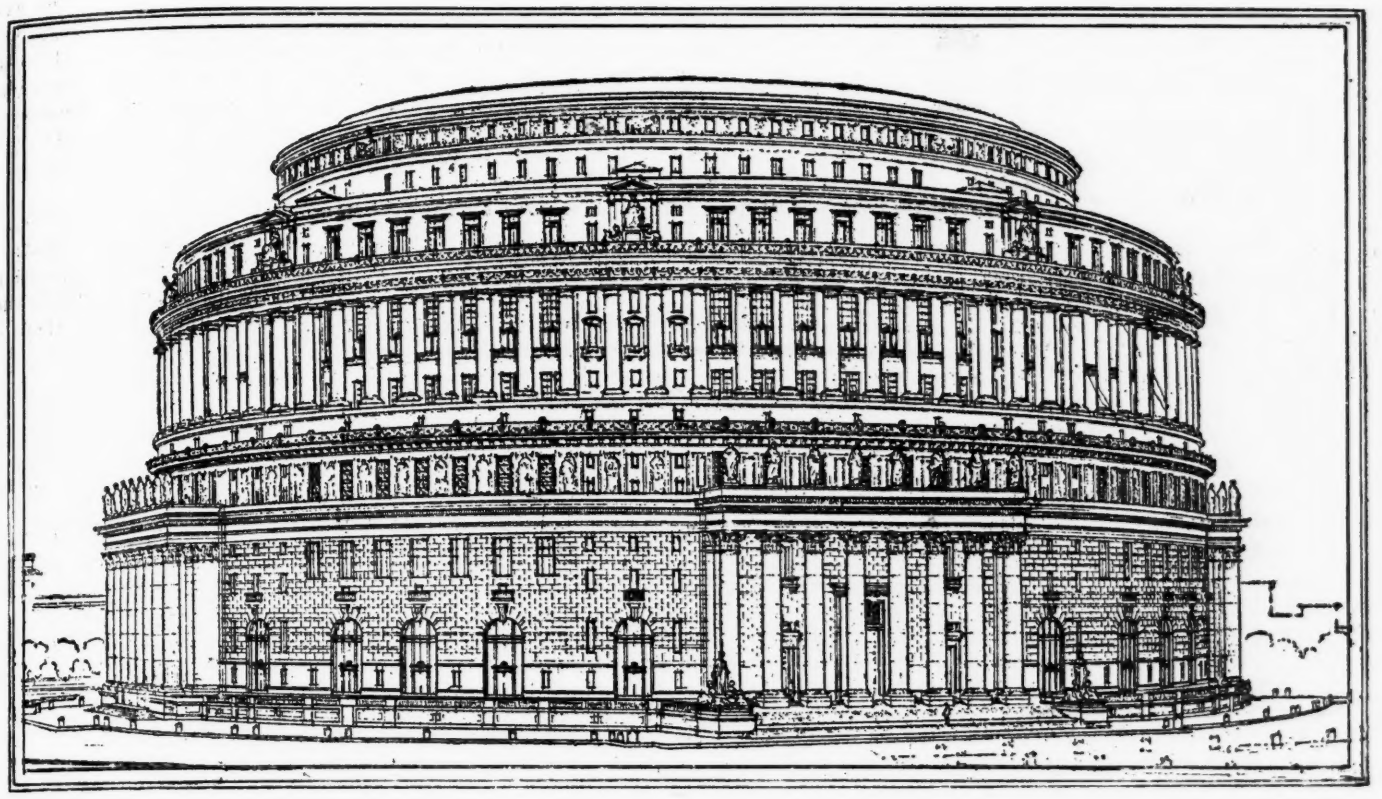
We are in the habit of looking on the "styles" of architecture as if they were matured in watertight departments, separated by inaccessible walls from one another, whereas they were but the prevailing types in certain ages insensibly becoming modified by the changing needs under which they were produced, and each building has, we may say, a trace of what went before it as well as the promise of what was to follow. The so-called Roman style was not a crude conglomeration of Greek and Etruscan elements inharmoniously assorted, but was probably nearly what the Greeks would have themselves produced had their civilisation and wealth been similar to that of Rome, and, as a matter of fact, the Hellenistic influence in Roman art was the stronger one. The man who has great and urgent needs cannot always choose the precise form of expression in the way the man whose wants are simple can. We are told that the Romans "plastered" applied Orders on to arcuated buildings, and were therefore at fault, but the critics do not inform us what they would have done if called on to treat the external wall of the Colosseum, nor have we ever heard any real reason why what is used structurally in one building, because it happens to be convenient to use it so, should not be used decoratively in another.

In a similar way we are treated to endless diatribes on the falsity of Renaissance construction, because it is often hidden rather than revealed, but we know of no intrinsic law like that of gravity which is sinned against by this concealment. We do not know why the acanthus leaf should be condemned by those who find merit in mediæval foliage, and we cannot see why we should not use the one as well as the other.

Since the age of Ruskin writers have been continually in the habit of writing of art as though it were a branch of morals, and while we are spinning phrases and trying to satisfy our conscience that we at least avoid the faults of our ancestors we are letting opportunities they would have availed themselves of go by. Wren committed the sin of treating St. Paul's as a two-storied building because he could not obtain stones of a sufficient size for a single Order, but, all the same, he created St. Paul's, which will be remembered when the works of the most eloquent of the latter-day critics are forgotten.

Let us, in fact, borrow where we can most fittingly, if borrow we must; the greatest buildings in the future will be produced by the men with the largest and finest conceptions, and not by those who think that past conditions alone made architecture possible and are nervously anxious to justify themselves before the dogmatists.

If the result is not architecture according to the views of critics, it will be a product of the times in the most intimate relation to it.



New Court House, New York City. *(See leading article.)*

NOTES.

The University of London.

IN the "Educational Supplement" of the *Times* we read an interesting article on the University of London, in which stress is laid on the great advantages of the Bedford site, and it is pointed out that many economies may be effected if the University of London, University College, and King's College occupied closely adjacent sites. It is stated that such buildings as students' unions and other institutions would not, in such cases, need duplication, as they would serve the purposes of both King's and University Colleges, the two chief constituent colleges of the new University. It is also urged that a group of buildings might be formed which would, to a certain extent, appeal to the imagination in the same way that Oxford and Cambridge do, and that, in fact, a students' quarter would be more easy of formation there than elsewhere. All this has much truth in it, but its realisation depends in no small measure on the terms the Bedford Estate is willing to give to the University. As we have pointed out, if the whole of the land between the British Museum and University College were available for the new buildings, as was suggested in an article in an estate paper, which may or may not have been "inspired" by those in authority, the reasons we have referred to as militating against the choice of this site no longer exist, and it would be of the greatest interest to know whether this suggestion is a definite one on the part of the Bedford Estate or a mere *ballon d'essai*.

Competition for Cottage at the Ideal Home Exhibition.

WE understand that the cottage designed by Mr. Ralph Knott at the Ideal Home Exhibition has nothing whatever to do with the competition inaugurated by the *Daily Mail*, which was assessed by Mr. Leonard Stokes, Mr. Raymond Unwin, and Mr. Dawber, and which proved abortive. After the competition our contemporary presumably found that architects were very pleasant and interesting men to deal with, and considered that they could not show their appreciation of this fact better than by giving an architect an independent commission, apart from and outside the competition which they had themselves promoted. Such an action is, in our opinion, highly to be commended, and we hope it will be followed by others of our contemporaries, but on somewhat different lines. If every newspaper in the country were to commission an architect to design a large country house and have it built, the Press would learn from experience to sympathise with and understand architects. A new and absorbing interest might be given to their columns which, instead of being given up to the discussion of Home Rule, Tariff Reform, the State of the Navy, and the Minimum Wage, would be occupied in discussing that greatest of all the arts to the delight and relief of their readers.

Bethnal Green Slums.

IN a Report of the Bethnal Green Public Health Committee criticism is directed against the County Council with reference to the houses in the Brady-street area. The County Council state that they are not at present prepared to undertake an improvement scheme in this area under Part I. of the Housing of the Working Classes Act, 1890. The houses in question are stated to be in a hopelessly bad and decayed condition, and incapable of being made fit for human habitation. The Committee regret that the London County Council failed to deal with the representations made in 1904 on the ground that there was an immediate prospect of the area being developed by private enterprise. There was no substance in that suggestion, and the Council were informed of that fact. The London County Council informed the Borough Council that further legislation dealing with housing was in contemplation at no distant date, but the Borough Council did not share that view. All over London we have the spectacle of the Moderate boroughs' wish to limit the London County Council's activities as against the Progressive boroughs' desire to see them increased. What would happen in this respect if metropolitan rating was equalised we do not quite know.

The Colonial Government Offices.

IN spite of Earl Grey's public-spirited enterprise on their behalf, the Colonies do not seem quite to see the advantage of joining together to occupy one building. The Government of New Zealand are proposing to acquire Nos. 413, 415, and 416, Strand, immediately west of the Adelphi Theatre. In connection with this proposal it is intended to close a portion of Heathcock-court, which has an area of 564 ft., but another court will be constructed with an area of 688 sq. ft. to the east of the present one. The Westminster City Council consider that an improvement will be effected and will offer no opposition. We are sorry that Earl Grey's scheme is not meeting with more Colonial support, but the instinct of independence is strong in our self-governing Colonies, who are somewhat jealous of any close association which may provoke comparisons between them. It is far easier in most of these matters to suggest division than to bring about that union which is in the best interests of all concerned.

The House Hunters' Bureau Again.

WE have been privileged to see a little of the inner workings of the enterprising architectural manufactory to which we have referred in a previous issue. In answer to a letter written to a gentleman who evidently had been in touch with the Bureau, but who hesitated to "place his order," the Bureau considerately state that they had no intention "to worry" its inquirers by repeated correspondence, but would esteem it a favour to hear whether building was contemplated at present or not. The writer adds:—"*We can assure you that to erect any of the houses designed by us absolutely ensures a sound investment, as we are inundated with inquiries from all parts of the country to know where houses such as are illustrated could be obtained.*" The Bureau has thus solved a problem—how to make building an absolutely sound investment—a point which has sometimes troubled the architect. Let us be humble and learn from the Bureau, unless indeed, as we fear, the existence of the latter means the utter destruction of those architects who are not chained up in the Bureau's backyard.

C

S. Pietro, Toscanella, showing Apse.

TOSCANELLA.

THE interesting town of Toscanella, the subject of this paper, lies some twelve or thirteen miles away from Viterbo, and is most readily reached by carriage. This was the mode we adopted, but in our case doing so led to certain adventures on which this is not the place to dilate, though one may say that it is wise not to engage the first carriage which presents itself.

Toscanella is an ancient Etruscan town, as is proved by the burial places on both sides of the road leading down to it, but the chief interest attaches to the two churches of S. Pietro and S. Maria, the former of which, with the remains of the bishop's palace and other buildings close by, occupies the ancient Arx. Turriozzi, the historian of Toscanella, speaks of the translation of the bodies of SS. Marcellus and Valerian in A.D. 648, at which time the bishop's seat was transferred to the newly-built church of S. Pietro. S. Maria therefore appears to have been the earlier establishment; when it was no longer cathedral it became simply collegial. In the ninth century Leo IV., in a bull addressed to Virobonus, Bishop of Toscanella, says that it was long before the first church in the diocese.

S. Pietro stands at the extremity of the plateau, so orientated that the façade looks towards the country and the apse towards the town. On this side a steep slope necessitated the construction of a crypt beneath apse and transept. There is a side door on a lower level and little windows at much the same height, which show that a crypt was there originally, though the present crypt is of a later date. It is vaulted with cross-vaults, without any trace of ribs, upon a forest of small columns, twenty-eight in number, many of which are antique, as are the caps; some are channelled or spirally grooved, and there are a few of precious marbles. Probably a good many of them came from a Pagan temple on the same site, as well as many of the caps, the rest being perhaps from the earliest ciborium, etc. An inscription on a marble slab ends: "SEXTIVS SENTIVS SEXTI FILIVS QVATRVM VIR DE SVO POSVIT." This crypt is apparently an alteration of the eleventh century. It could not be taken down lower than the foundations of the *arco santo* and the transept arches, nor of the apse wall, therefore the floor of the apse had to be raised, and there are now six steps which project nearly as far as the first pier.

The door by which one enters is lower than either church or crypt. Opposite to it is a cap closely resembling one of the Cypriote caps in the Louvre (figured by Perrot and Chipiez). Close by is a delightful little chapel, and in the crypt is an altar with Cimabue-like paintings around and within the niche. A broad staircase leads to the upper church, where by the first pillar on the right in the nave is a holy water stoup, apparently made out of an ancient altar.

The plan shows nave and aisles, a transept and central large apse, with two smaller apses which do not appear externally. There are six arches on each side and a simple arcade above, with clerestory windows opening in it. There are neither mouldings, caps, nor bases inside, and the arches go through the wall.

This arcade butts against a big pilaster or pier at the entrance of the transept. Within this is the *arco santo* with a half column, and arches are also thrown across the transept from these piers as if in continuation of the nave walls. These arches are plain and unornamented. Those of the nave have two Orders, and projecting voussoirs divide the inner one into sections, possibly intended to enclose marble slabs which never were added. The nave is 27 m. 50 long and 9 m. 85 broad, the aisles being 5 m. 70. From the transept steps to the apse wall the distance is 9 m. 70, and the opening of the apse is 6 m. 00 across. Between five of the nave columns a dwarf wall runs, a division between the sexes, the men being in the nave and the women in the aisles. The provision of this division indicates an early date, since it usually does not appear after the sixth century, though about Viterbo it may be found later. The nave columns of cipollino and granite are squat, several of the caps being antique; deep abaci surmount them. M. Clausse thinks they are halves of antique columns. In the apse is an episcopal seat of simple design raised on two steps; square with upright arms and the back surmounted by a disc. The high altar is a simple block of stone with a rectangular slab above. The ciborium has four columns of white marble veined with green, varied caps with leaves and volutes, four round arches and pyramidal roof: no ornament on it but the inscription, which runs:—

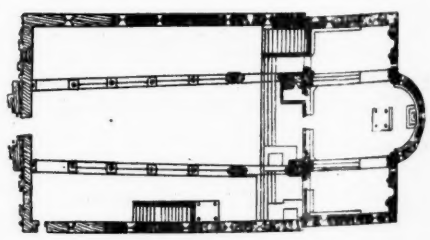
" + RICARDVS PRESVL TVSCANVS CENTVM CELLINVS ATQVE BLEDANVS
+ SIT RICARDVS PARADISI SEDE PARATVS AMEN
+ EGO PETRVS PRESBITER HOC OPVS FIERI IVSSI
+ ANNO AB INCARNATIONE DMI MILLENO NONAGESIMO III + "

The date given, 1093, is probably that of the alteration of the height of the sanctuary floor, when the carved slabs of the ninth century were employed for the screens. Sig. Venturi says that about 1090 a large number of Lombards settled in Viterbo, forming a kind of colony in the Rioni of S. Pietro and Borgo Lungo. Among them were builders and carvers, and in the archives are contracts with master-masons of Lombard cities. The statutes are of very ancient origin, though reformed in the fifteenth century, and among them that of the "petrai," including builders, carvers, lime-workers, etc., dates from 1110. The *festa* of S. Ambrogio is mentioned in it, and the Lombards are specially enjoined to observe it. At an earlier date also Comacines were at Viterbo, a document in the *Regesto Amiatino*, under date 739, proving it, in which a certain Rodpert is mentioned.

The apse and the three arches at that end of the nave, in their original condition, then, are work of the time of Liutprand. Above the side door outside and along the aisle wall is a row of small blind arches forming a decorative band, and there are windows about the door level showing that there was a crypt originally. The wall is divided by pilaster strips, most of which stop at the base of the blind arches; under the eaves is a cornice consisting of two rows of horizontal corbels. The same enrichment runs round the apse and the gable above it in the same relative position, and it is further enriched with two rows of oblong square-headed sinkings (which appear to show that it is earlier than the ninth century, as after that date they would probably be arched, as at Milan). Below the upper of these rows is a band of arched corbels divided into threes by pilaster strips, below which again is a series of diamond-shaped openings made of tiles set anglewise; then comes a second band of square-headed sinkings and some distance below another group of three arched corbels; narrow doubly-splayed arched windows occupy alternate bays. In the flat walls are piercings of cross shape and heavy buttresses support the angles. This primitive Lombard church is the oldest one known of the style.

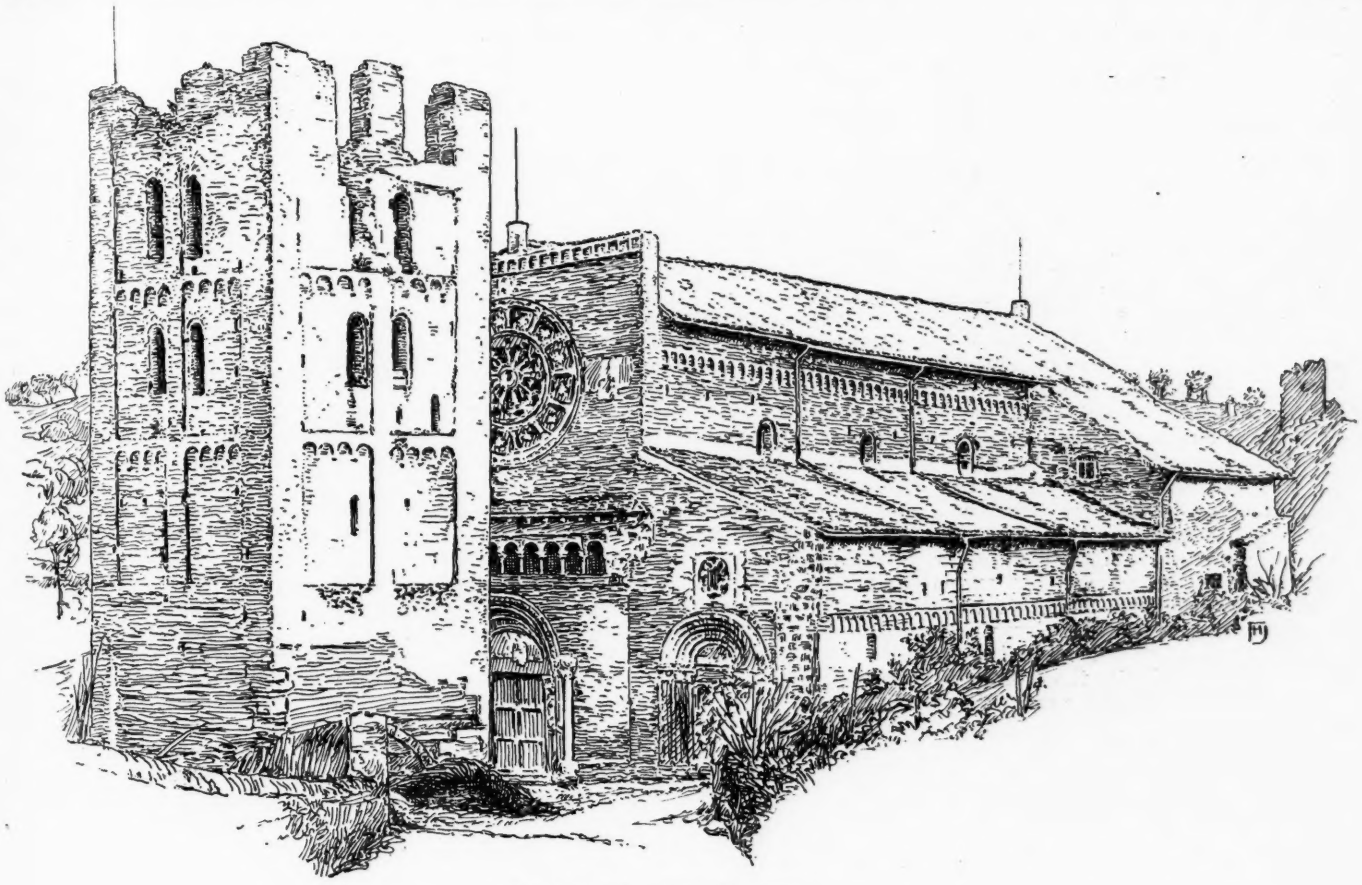
In the south aisle is another ciborium very like that at the high altar except that the caps have acanthus leaves at the angles, and in the screen is a doorway with a monolithic arch resting on colonnettes with ninth-century design on it as on most of the carved slabs forming the screen. By the great pier on the right is an altar slab set in a mass of masonry. On the other side is a similar projection, and here Sig. Gentili found the holes in which the steps were fixed by which the square cage for the staircase to the roof was entered. The ambo is quite plain. On the arch of the apse and above it and in the semi-dome is painting, a good deal damaged; the subjects of the Paschal Lamb, busts of the Twelve Apostles and angels above can be made out, and in the apse is a large figure with angels round as in an Ascension. There are also figures on some of the piers, more or less Byzantine in style. The apses of the aisles do not show externally, and the triumphal arch has importance given to it by the addition of a second Order. All the roofs are of wood.

The church was lengthened and a new façade added probably early in the twelfth century. The proof is the difference of



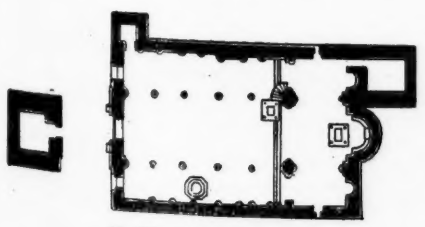
S. Pietro.

style in the caps of the nave columns, the fact that the seats in the nave show the base mouldings, and that above the column is a perpendicular line in the wall; also the earlier arches vary in width and have the projecting voussoirs plain; the newer ones have them carved and are all of the same width. Other differences also show on



S. Maria Maggiore, Toscanella.

the outside from this point. The façade consists of two portions—the central part, mainly due to a Roman marble-worker, and the two sides, which are of the same date as the last arches of the nave. The aisles have corbelling in slight relief following the slope of the roofs and returning horizontally. In the triangle thus formed is an oculus; below is an arcade something in the manner of the Pisan work; but the arches are not all the same size, and above the doorways brackets replace the thin columns. On the inner side of these brackets lions' heads project, apparently antique. The side doors are walled up; in the lunette of one side is an eagle with outspread wings, in the other three queer little figures. There are two or three Orders and carving round the arches, one colonnette (this is twisted in one doorway), and two pilasters. The central portion has an entirely unornamented pediment; below on each side is a pilaster with engaged column carved with palms arranged like fish's scales. One cap with two rows of leaves serves for both. Their bases rest on projecting half-oxen, with recurved leaves below them. A cornice with modillions runs across the top. The centre of the space is filled by a great rose window, with the symbols of the Evangelists filling the corners of the square framing; good carving and inlay in the bands. On each side is a two-light window, with three colonnettes and horseshoe arches; round one



S. Maria Maggiore.

of them a band of arabesque carving, with discs enclosing angel heads, the Paschal Lamb, etc. On the other side is an arabesque scroll repeating the lines of the discs, but with curious details at top and bottom. At the top is a triplehead, front and two side faces, like one of the symbols used for the Trinity; below is a half-length colossal figure holding a writhing snake in both hands. Between the side windows and the rose creatures project tail upwards, a dragon above on each side and below a wingless beast. The constructional details show that these are of the same date as the framing of the windows and the rose, though the rose window itself appears to be later. The execution resembles that of the similar windows at S. André de Sorède, in Roussillon, but the design of this upper part is almost exactly repeated at Lugnano, in Teverina. Beneath the left-hand window is a carved panel—a kneeling man with his arms raised. Under the rose window is an arcade of eleven slightly horse-shoe arches beneath a modillioned cornice; the caps are Ionic in design. At each end is the figure of a gryphon. Then comes the great door of four Orders supported by three columns in the jambs, resembling that of Corneto a good deal. The arches are carved in very low relief, and at each end of the outside one was a piece with a small mosaic pattern; only one bit remains. Round the door also is an enrichment in mosaic. This central portion is the work of a Roman marble-worker, probably of the early thirteenth century. Of the same period is a portion of the nave pavement.

Promis in 1836 is said to have read on the principal door arch of S. Maria: "RAINIERI IHIS PERVSINVS," and on the upper two-light window: "NICOLAVS RANVCIVS | CIV | MAGISTER | ROMANVS | FECIT." At S. Maria there is no such window, but it agrees with the description of S. Pietro. Here there is an inscription which runs: "EGO RANIERVS EPS TVSCANENSIS RECONSECRAVI ALTARE AD HONOREM B. BLASII ET HORVM CONFESSORVM." Ranierus was made bishop in 1199 by Innocent III. The episcopal palace was close by, and a good deal remains of it, including some pretty two-light Romanesque windows, as well as portions of the fortifications. The fortress was destroyed by the French troops of Charles VIII. In front of the façade was probably an atrium, the extent of which is marked by the old tower.

S. Maria lies lower and nearer to the town. It is a basilica of nave and aisles, with central and side apses, the latter not showing externally. A transept of the same width as nave and aisles is raised three steps above their level. There are four columns between these steps and the western wall, and by them are two piers doubling the plan of those on the wall between the apses. The aisle walls are arcaded, the spacing of the two walls not answering to each other, nor to the nave arcade. The arches are all round. Across the transept arches are thrown of the same span as the width of the nave, which is 10 m. 45. The width of the aisles is 6 m. 40. From the back of the apse to the main door of the façade the length is about 35 m. 00. The nave itself measures 22 m. 60. The width of the transept is 7 m. 60, and the opening of the apse 4 m. 50. All these measurements are taken from an article by M. Clausse in the *Revue Chrétienne*. In the apse is a circular bench, with bishop's seat in the centre raised on three steps. In front of it is the altar, a slab supported on four bits of columns, with carved panels of the ninth century between. It is one step above the transept level beneath a ciborium, in which four slim colonnettes of white green-veined marble, with bases and caps of various dates, support semicircular nine-lobed arches. It terminates with a pyramid crowned with a cross, and the construction is plastered and painted both within and without with saints, Evangelists, and emblems. Close by is a spirally-channelled column, used as a Paschal candlestick. The celebrant faces down the church. On the left side is an ambo made of ninth-century panels and supported on arches and dwarf columns. The panels were probably part of the older choir enclosure and the rest part of the old ciborium. At the angle is a figure with an eagle-supported book-rest above it, and beneath the ambo is a little altar. This is all, no doubt, a twelfth-century reconstruction. The font is in the south aisle; it is hexagonal and stands on two steps. The ornament on the slabs composing it is eighth or ninth century. The intrados of the nave arches is carved; above is a cornice with varied modillions, which butts against the pilaster of the transept. The caps are all alike, based on Corinthian, with ornamented abaci and a great deal of drill-work in the carving; the bases have claws. The pilaster of the transept is more lofty, perhaps for the rood beam, or as the springing of a destroyed triumphal arch. There is a good deal of later painting on the walls—saints much

defaced on the columns in the aisles, the history of the Virgin in the transept, the Twelve Apostles in the apse, with a colossal Christ in the centre, and a Last Judgment above the arch of the apse. These paintings were restored under Pius IX. The two bays next the entrance appear to be later additions, judging by the difference in the mouldings of the intrados and the cessation of the ornamental carving.

The façade bears a certain resemblance to that of S. Pietro in that it has a central large door with two smaller flanking it, and an arcade of little arches above it, above which again is a large rose window. The wall terminates with a slightly projecting and bracketed cornice, but there is no pediment as at S. Pietro, nor side windows. The central door is flanked on each side by a column resting on a lion, spirally channelled, with composite caps, on which birds and small figures appear. The arch has four Orders, of which the outer and innermost are carved, resting on as many columns ringed round the centre; the tympanum has a group of Madonna and Child which overlaps the lintel curiously; on one side is a roundel with the Agnus Dei, on the other Abraham's Sacrifice, and a figure on an ass, perhaps the story of Balaam. At each side of the door the jambs bear a figure with ornament below on the flat part, S. Peter on one side and S. Paul on the other. Portions of this door may have belonged to the older church. Above it is a loggia on nine small columns, with Romanesque arches and a marble cornice, with griffins beyond it at each side. The rose window above consists of marble columns and pierced slabs of *peperino*; above, below, and on each side are the symbols of the Evangelists in high relief. The side doors are much simpler—three Orders and hood-mould, all carved, but with a curious arrangement of pilaster and columns below suggesting five Orders with caps and bases. The tympana bear carving which must have come from the earlier church, since the ornament does not fit the space; above is a circle pierced by a sexfoil. The left-hand doorway is lower than the right, and the piercing above the arch interrupts a row of arched corbels above it.

The church was reconsecrated in 1206; an inscription states that it was so on October 6, by Ranierus, Bishop of Toscanella, assisted by Bishops Petrus of Sutri, Gerardus of Nepi, Matthew of Orvieto, and several others, eight in all. Ranierus also assisted in the consecration of S. Maria in Castello, Corneto, two years afterwards, which suggests a reason for the resemblance in the design of the west doors of that church and of S. Pietro. A great deal of the carving at S. Maria looks thirteenth century. Only 18 ft. from the façade the massive bell tower rises, Lombard in type, and bearing considerable resemblance to others in Roussillon and Catalonia.

The two basilicas were abandoned in the sixteenth century, when Cardinal Gambara, after building the new church of S. Giacomo in the town, translated the episcopal seat thither. The town walls are still well preserved, and the church of S. Maria delle Rose has some antique features remaining.

Turriozzi, in his history of the town, written in 1778, says that Toscanella is the ancient Tuscania, citing a number of opinions in support of his contention. As early as the seventh century the word Tuscania is linked with it. In the Rodpert document (739) it is called "Tuscanensis," and in others from the tenth century onward it has the same denomination. The monastery of S. Giusto, to which reference is made in deeds, is still to be seen in ruin near the city. He quotes Francesco Gianotti as saying that in his time two sepulchres were found in which the dead wore crowns inscribed with antique letters, suggesting that they were perhaps Lucumones. The magistrates of the city were Quatuorviri, those supreme in colonies and municipalities (answering to consuls) and Decuriones (answering to senators—from them the Quatuorviri were elected). There were also Decuriales (a sort of lawyers) and Aruspices, Augurs. Apparently it was governed by prefects until the eighth century. In the life of Pope Zaccarius by Anastasius Bibliothecarius (742) one reads that King Liutprand, restoring to the Pope certain cities, sent "Raningo Castaldo Toscanense," the Lombard *locum tenens*, to give him the countersign. At a later date a Podestà ruled, elected by the city every six months. In 1337 the city gave itself to the Holy Seat, but retained the right of holding this election till the end of the sixteenth century. The Lombard kingdom reached as far as Viterbo. Under these kings the barons possessed the right of fining for disobedience up to an amount of 100 marks of silver and the devastation of the land; any delinquent vassals or servants were arrested and handed over to the Podestà. The country-folk and vassals had to pay a customs duty to the city. The death penalty was enforced on any who assisted the enemies of the city, their property being confiscated to the commune. Later the barons had rather a hard time of it. If they wished to enter or stay in the city they had to obtain permission from the Podestà, the Gonfalonier, and the ancients. If they excited tumults, death with confiscation of their property was likely to be their fate, and outlawry in the event of disobedience to the Podestà. They were forbidden to let or sell their castles or their possessions, the penalty being a fine of 100 marks of silver and the annulling of the contract, etc. The townsfolk were forbidden under a heavy fine to serve the barons as against the city, failing the payment of which a hand was cut off! From rebel castles anyone might loot, and if such buildings were destroyed through the fault of the lord they were not to be rebuilt, but the territory was escheated to the commune.

Till 1407 the Roman Pontiff ruled. Then Paolo Orsini asked the Tuscanese to receive some of his soldiers as he could not keep them all. They innocently consented, when he sent 2,000, and thus became lord of the place. The next year Angelo d'Avello, the Condottiere known as Tartaglia, took possession and ruled for fourteen years. Niccolò della Tuccia gives some interesting details about this period, showing how the condottieri behaved. In 1417 Tartaglia cut off the head of Beccacino di Brunora, his comrade in Toscanella, and came to terms with Braccio as to occupying the lands of the church. They had between them 2,500 horsemen. Tartaglia held a number of places reaching from Corneto to the district round Toscanella, while Braccio's power reached from Città di Castello and Perugia to Orte and Orvieto. They proposed to attack Viterbo, and Martin V. (to whom Toscanella had returned in 1422) was not strong enough to prevent them. The Viterbese therefore asked the Queen of Naples to send Sforza of Cotignola to help them. He required the Viterbese to do their part, and they sent 500 foot. Sforza had moved on before they reached his camp, so they had to fight Braccio by themselves.

The result was that after fighting till vespers they had two men killed, while 450 were made prisoners. Braccio afterwards surprised Sforza and broke up his force, so that he had to flee to Viterbo with about twenty men-at-arms and helmetless. In despair he threw himself on the enemy and took several prisoners, while his men rallied, but was wounded, as he was not fully armed. A devoted corporal, named Sante Parente, tried to make him turn back, and he threatened to hang him; but he took hold of the reins and turned his horse back, saying, "Better that I should die than you." Viterbo was besieged for some time, but fruitlessly.

Tartaglia afterwards joined Sforza and was engaged for the Church by Martin V. Braccio then made a fresh arrangement with Tartaglia. Through a visit of Tartaglia's brother-in-law to Toscanella this leaked out. Sforza in consequence took him and beheaded him, annexing a great part of his company. In 1435 Ciarpellone and Bernardo d'Utri were in command, but in September, 1443, the town gave itself to the Church. In 1495 the soldiers of Charles VIII. of France plundered and partly burnt it, and it now has only 4,000 inhabitants.

F. HAMILTON JACKSON.

THE NATURE OF BEAUTY.

MR. S. C. KAINES SMITH has chosen for his course of University Extension Lectures at South Kensington this autumn a subject which, while of the greatest possible interest, is, at the same time, highly controversial. The lecturer's method, as outlined in the printed syllabus, is "to treat separately of the various aspects of beauty . . . and to deduce from them some canon by which intrinsic beauty may be measured and recognised." Undoubtedly, if we ever do arrive at a satisfactory definition of beauty it will be by some such path as this; but to our mind the chief difficulty of arriving at a complete conclusion lies in the fact that every creative artist who appears in the world discloses to a more or less unwilling public some fresh aspect of beauty. Consequently new factors are always being added to the data upon which our canon is to be based. If Mr. Kaines Smith can deduce from existing material a canon elastic enough to include the additions that will be made by geniuses as yet unborn, and at the same time not so wide as to be practically meaningless, he will have achieved a result of the greatest possible interest.

The lecturer began his task by saying that we all know there is such a thing as beauty, and can realise it instinctively when we see it, even (if the beauty be extreme) against any collocation of circumstances.

We presume he was referring only to that limited class of humanity which has received the blessing of "culture," since the appreciation of any but the most obvious forms of beauty is an acquired characteristic. Indeed, Mr. Smith implied as much when he said that two people may look at the same object and one may see beauty in it while the second cannot. This observation led the lecturer into the difficult question of the subjectivity or objectivity of beauty. Does the quality of beauty reside in the object or in the eye of the beholder?

Mr. Kaines Smith admitted subjectivity in beauty only to the extent of admitting that beauty would be wasted if there were no one there to appreciate it. It would not, he said, be non-existent. Though we agree with him on common-sense grounds, we should have welcomed some sort of proof for a statement of this kind. It is not a self-evident proposition. However, perhaps he was wise not to spend time in defending a position which few would feel inclined to assail, passing instead directly to the division of beauty into two main heads, namely, expression and impression.

At this point the lecturer turned from his main theme to the question of beauty in art. "Art," he said, "is the expression of ideas through beauty." In this definition of art we cannot follow him, though we are well aware that it is the usual modern view of the question. The first part of the definition—"art is the expression of ideas"—is true enough, but we cannot accept the statement that these ideas are to be expressed *through* beauty—*i.e.*, by means of beauty. In decorative art, it is true beauty—abstract beauty without any "meaning"—is the idea the artist wishes to express. But the means he uses are rhythm, harmony, contrast, pattern, and the like—things which are not in themselves beauty—they are, in fact, only different forms of emphasis. Exactly the same means are used to express any other kind of idea which the artist may wish to convey to his public. The result will be beautiful if the means have been so employed as to give adequate representation to the idea. But this beauty is a by-product, and not really part of the object of the artist, though he will, no doubt, be glad to see it as a kind of proof that his work has been well done. If we are right in our theory it should be possible to express the idea of ugliness so perfectly that the result would be beautiful. If, as Mr. Kaines Smith affirms, ugliness is the antithesis of beauty,

this would be impossible. But it has been done often enough. We are not referring to the grotesque but to the purely ugly, such, for instance, as many of Leonardo da Vinci's drawings.

But apart from his definition of art, which we have thus ventured to question, the lecturer said many things about art which were well worth saying. Lack of space prevents our quoting him in full, but we cannot help dragging one or two of his phrases from their context and letting them stand by themselves, as they are very well able to do. "A work of art may appear to be merely decorative in intention—i.e., without meaning or idea—but it may be our fault for not perceiving the idea." "An artist who gives merely an exhibition of skill is wasting his time." "Ideas of beauty are based ultimately on natural forms—that is, on what we are accustomed to."

For these and many other true and forcible sayings we are grateful to Mr. Kaines Smith.

THE SCOTTISH STYLE.—III.*

AFTER the apex, which the later building, 1638, of Caerlaverock, may fitly mark, and before the setting in of that Georgian formalisation, often good enough in itself, taking Newliston, near Edinburgh, or Valleyfield, near Culross, as examples, which I marked at the outset as my latter boundary, there is much unique and charming work which should not be denied to the Scottish style. The direction of development, showing a tendency towards symmetry, was no contravention of the natural law to which the psychological development of the human mind inevitably bows. Caerlaverock, with its twin frontal towers, and Tantallon, and many other castles were symmetrical, *en face*, in fulfilment of their function, as, other things being equal, what served best for one side would also be best for the other. That is the natural symmetry that provides all living things with an even number of limbs, gives to the human frame or to a ship the equipoise we admire—even those of us who hold that a building should boast externally all the uneven variety of its parts within. But what is to be noted in Scottish building, at the point I have reached, as with other styles at analogous stages, is its desire for that even balance which is more the outcome of a mental, spiritual even, than of a certain expedient condition.

A too early example is Newark, well known, fronting the Clyde, attaining, as to its main elevation, almost absolute symmetry, turret for turret, chimney for chimney, with a most unpleasant effect, due perhaps to its precocity. It sprang at once (1597 is its date) to the ideal of the eighteenth century. Newark, with Fyvie and Brechin Castle, though the last is somewhat later, and a few others, seem before their time to have fallen into the error of confounding symmetry, the stiff stark formula, with balance, the vital aspiration. My animadversion has relevance, however, only to their mistaken readiness in forestalling a later development, fitting enough in the pilaster and pediment composition of its time. The precision of symmetry is at variance with a building cast in terms of turrets and crow-stepped gables. Fyvie alone would make three or four notable castles, each one arresting by virtue of the freshness of its detail and the fine colour contrast of the deep red sandstone and dark blue slates with its basic expanse and magnificent, sparsely-windowed height, of cream white wall. Newark redeems itself sufficiently by the design of its doorway, where, in the tympanum of a crude broken pediment, which surmounts a spirited rendering of an impression of fluted Doric pilasters, one reads the words :—

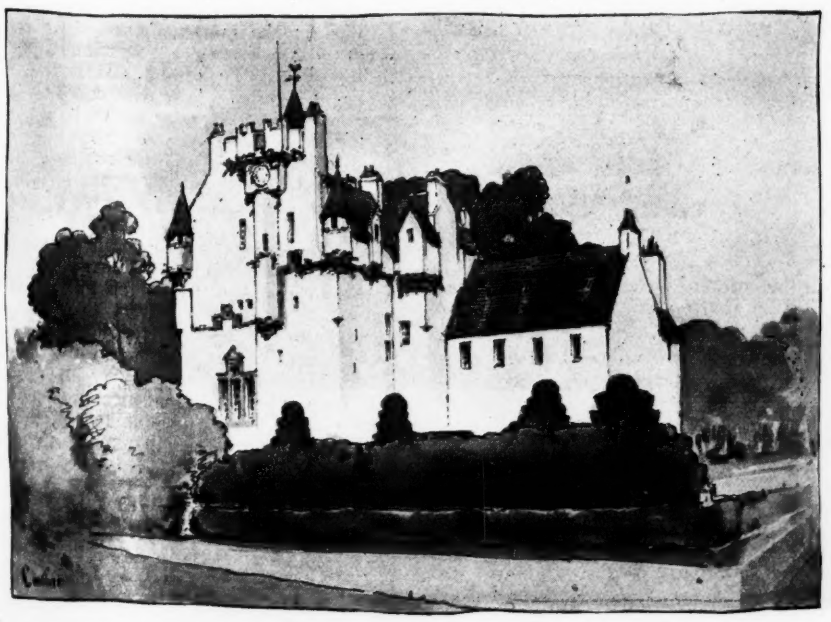
"THE BLIS SINGIS OF GOD BE HEIRIN."

Castle Fraser, with its black dog and the stern prohibitions to investigators on the part of the lady who owns it, something of a fairy-tale retreat, is a better example of the beginning. Low, gracious wings, terminating in lodges, with stone bell canopies crowning the gables on either side of the gateway between, show a desire for an ordered disposition of parts that are usually planted, as sheds and sundry outhouses, enclosed it may be by a loopholed wall, round about. The designedly effective courtyard, arcaded on either hand, gives this castle an air of being a settlement, self-sufficiently complete, a condition very different from the nudity in which so many spring from the ground, as though their dependents had, for some cause, deserted them or been dispensed with under pressure of necessity. Alterations, conducted in a spirit of disdain (or, possibly just of ignorance) of the history of the Scottish style, of which this mansion is one of the most beautiful and perfectly developed examples extant, have reversed the orientation of the building. A main doorway has been inserted in a façade, which was formerly like an inaccessible cliff to the world without, and as a consequence, doubtless foreseen, what was once the forecourt is now a backyard. But no one equipped with a mere sense of the picturesque even can, in viewing the building, make the mistake with which those more intimately concerned are presumably content.

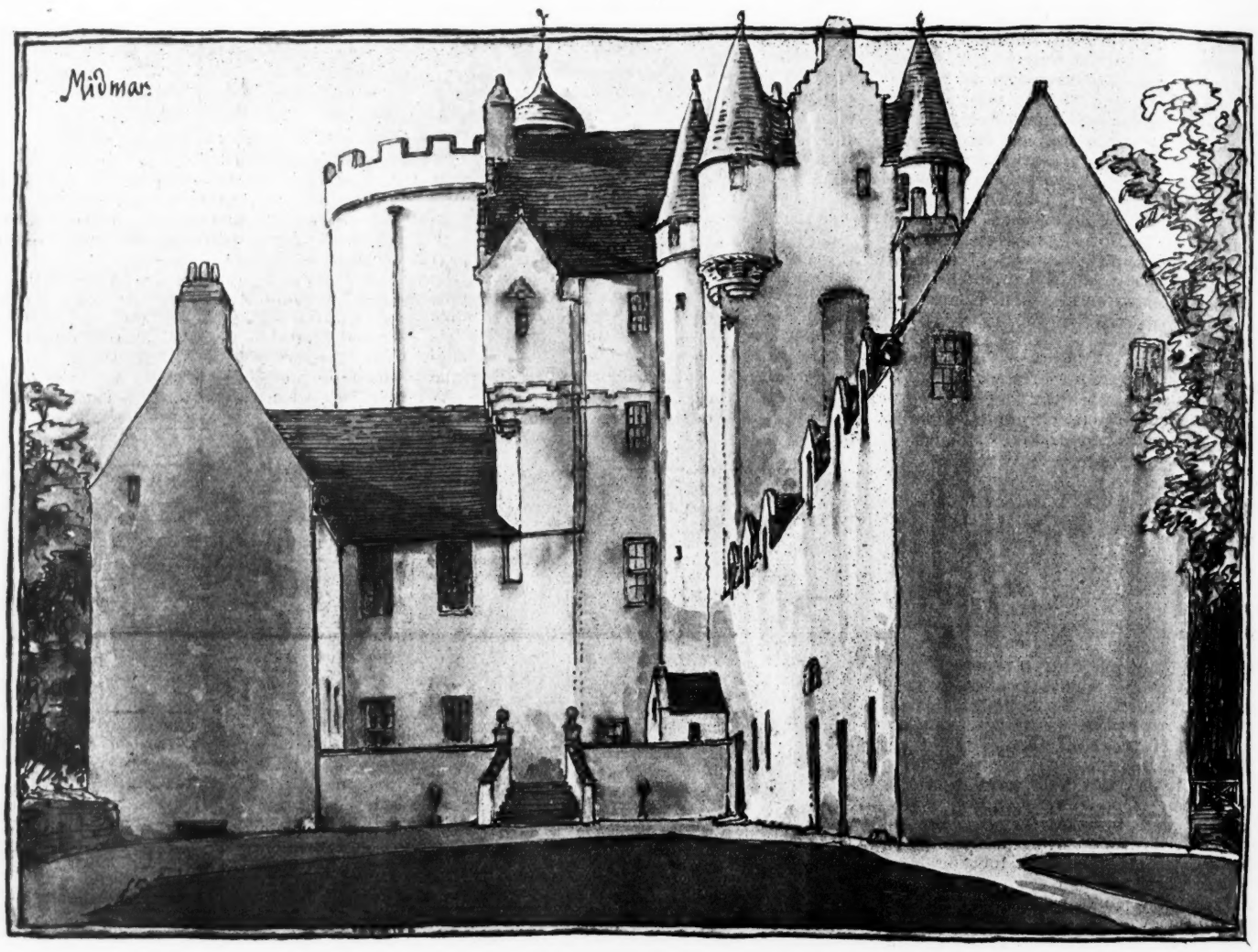
Traquair, near Innerleithen, carries us considerably further. The house itself, people say, is the oldest in Scotland, and, although it is not alone in that respect, parts of it are undoubtedly very old. Through its coating of whitewashed pebble-dash, queer bulgings and unevenness betray the heterogeneous antiquity of its walls. Stunted turrets and disappointed towers combine with the extraordinarily small windows, or rather small proportion of void as

* Extracts from a paper by Mr. Adrian Berrington.

Craigievar, Aberdeenshire.



Crathes, Aberdeenshire.

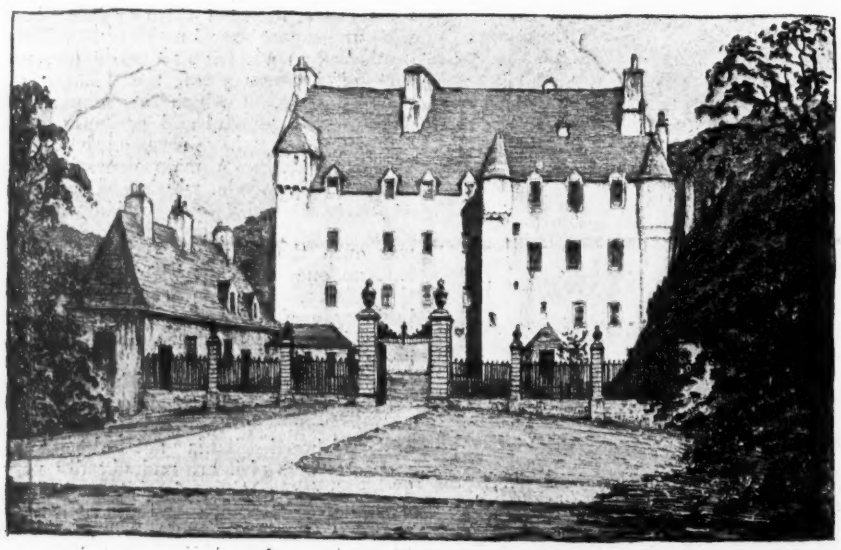


Midmar, Aberdeenshire.

compared with solid, further reduced by broad white bars, and the fact that the mighty chimney-stacks hardly rise above the long stone ridge to give the place an air of having had its exuberances compressed rather than shorn. In the assured fame of age it seems to feel that it can afford to dispense with anything striking so long as its bulk remains. But this great mass, reservedly exciting as it is, has, on the one side, to the north, overlooking a meadow yellow with daffodils in spring and contained by the River Tweed, two terraces flanked by square plain pavilions, hip roofed in a double ogee curve; and on the other a forecourt, bounded by two low wings of outbuilding on either side, and fenced by a wrought-iron railing with stately piers of stone—both terraces and forecourt being worthy to become the type for Scotland of such things in themselves. The great house is contained, buttressed, or, say, æsthetically fortified, as it were, by these additions—anachronistic enough to be piquant, sufficiently purposeful in conception, while unaffectedly reserved in treatment, to enhance, but never to outdo, the somewhat shapeless mansion they are designed to steady and adorn.

Such places as Traquair, as Woolmet House, near Edinburgh, or the North gateway to Meldrum in Aberdeenshire, and the hunter's gate, with flanking pavilions, to Pollock, South of Glasgow, and, for street façades, one or two of those in Broad-street, in Stirling, should be the inspiration for Scottish work, pending better times, were Scottish architects in any need, rather than the "baronial," now I trust out-moded, after producing Kinnaird Castle and Victoria Hall, Linlithgow, to name by no means the worst. The reserved northern graciousness and cultured serenity attained by Scottish mansions in the later seventeenth and earlier eighteenth centuries are truly *Ecossais* in the legitimate line of descent, and the characteristics of the style at the point at which it should rightly, and could with advantage, be taken up by modern designers.

So many places that I can hardly bear to pass over happen to have found no place in my tale, though they all in respect of their various qualities went to its making. I visited, as far as I have kept count, spending three days to half an hour over each, some one hundred and seventy buildings, nearly everyone having fresh quality to offer, many, as I now remember them, to the lesser or greater disturbance of my argument. But I feel justified in the main in thinking of the Scottish style as warlike in its origins, fiercely romantic at its zenith, and unalterably aristocratic in its graceful slow decline.



Traquair House, Peeblesshire.

CORRESPONDENCE.

The Delays of the Office of Works.

SIR,—In the matter of the Board of Trade Offices Competition the competitors are greatly hampered by the official dilatoriness of the Office of Works. After the competition had been advertised in your pages it was nearly a fortnight before those who applied for them could obtain the Instructions. It was announced that questions could be asked up to September 27, but no answers to them are forthcoming yet. The suggestions as to what was to be done with the north portion of the building are so vague, and leave it so doubtful whether the design is intended to be treated as one whole or as two halves, that until some light is thrown upon this point (as one may hope it will be) by answers to questions it is all but impossible to formulate a scheme.

If time is of no consequence in the Office of Works they might at least reflect that it is likely to be of some consequence to competing architects.

A COMPETITOR.

The Rating of Site Values.

SIR,—I have been trying for the past week to understand "J. W. C. A.'s" point of view. I must, however, give it up. Only one thing seems clear in his letter of September 26, and that is, that he favours our present system of rating because "it intercepts a large amount

of site value in relief of rates." This being so, I cannot understand why he objects to the proposed reform, which would effect this interception universally and impartially, without taxing enterprise.

Of course, a man with a large garden should pay higher rates than one with a small garden (in the same position). If he does not get more out of it—whether of profit or pleasure—that is his fault, and not the fault of the community. Similarly with the factory. Each man should pay for the measure of *opportunity* conferred upon him by the community and not for the use he happens to make of it. I commend to "J. W. C. A." a study of the parable of the talents.

I thought we were both agreed as to the practical impossibility of adjusting the rating in proportion to the actual use made of roads, drains, etc.—at any rate, that is not the case under the present system, nor would it be so under the proposed system, so it does not seem worth while to raise the point. If "J. W. C. A." really believes in this principle, he should advocate the reinstatement of the turnpikes for the roads, together with a special poll tax on every inhabitant for the use of the drains!

F.R.I.B.A.

SIR,—There is again much that is irrelevant in Mr. Frank Perks's letter on the taxation of land values in your issue of October 3. Personal reflections and base insinuations are, I hope, not characteristic of English gentlemen engaged in the building trade when they are asked to discuss with any kind of foreigner the proposal to take rates and taxes off buildings and make the value of the land alone the basis of taxation. Mr. Perks has the assurance to ask a certificate of sincerity from me because I am in the unusual position of a man who, having become wealthy through special privilege and monopoly, is using all his resources to destroy privilege and monopoly in order to establish equal opportunity for all. He accuses me of other motives, and thus reveals a standard of action by which he allows others to judge him.

There I must let the matter rest, and I do not propose to weary your readers with my claims to honesty and disinterestedness in urging absolute free trade where the tariff allows me to sell my products at artificial prices, and in helping the agitation for the equal right to land in all countries wherever men and women are to be found fighting this battle.

The most novel point in Mr. Perks's arguments (where he does condescend to argue instead of abuse) is the contention that the 12,600 acres in London, not assessed for rates but only obtainable at high prices, are withheld from use "to the great advantage of the mass of the inhabitants of London." It is to their advantage if the burden of rates is imposed wherever land is fully used, while vacant land having a high value is absolutely exempt! It is to their advantage that builders cannot get land save at monopoly prices, while overcrowding and the housing conditions of the "mass of the inhabitants" are a standing disgrace to civilisation! I make Mr. Perks a present of this contention, and if I could only be sure he would spend the same time, effort, and money in popularising this remarkable doctrine as I do in popularising the taxation of land values I would cheerfully offer him hearty good wishes in his campaign.

Practical steps towards the taxation of land values have been before Parliament in various forms. They have been, and must be, worked out by those who realise the distinction between land value and the value of improvements. Mr. Perks either does not, or will not, see this distinction, and until he does he is not competent to discuss practical proposals. He is disqualified by his contumacy. Practical proposals were submitted to Parliament even during the years of the Conservative *régime*, when, on one occasion, forty-five Unionists voted for the rating of land values. Since then other proposals have been made, and they have crystallised in the programme of the Land Values Group to which I have already made reference. The Group have provided a means for setting up new standards out of the chaos and complexity of the existing system.

I do not know how much of the cost of education, poor relief, etc., is to be paid out of general taxation, nor can I gather precise information on this point, either from the report of the Royal Commission on Local Taxation or from the recommendations of the numerous bodies *who propose this readjustment*. What I do suggest is that all relief given to local authorities from the Exchequer should be provided by a tax on land values, if the relief is to be given to the user of land and not to the landowners.

The total cost of poor relief, etc., can be better ascertained from the regularly published Blue Books than from a "Yankee" like myself, who has the "impertinence" to interfere in British politics.

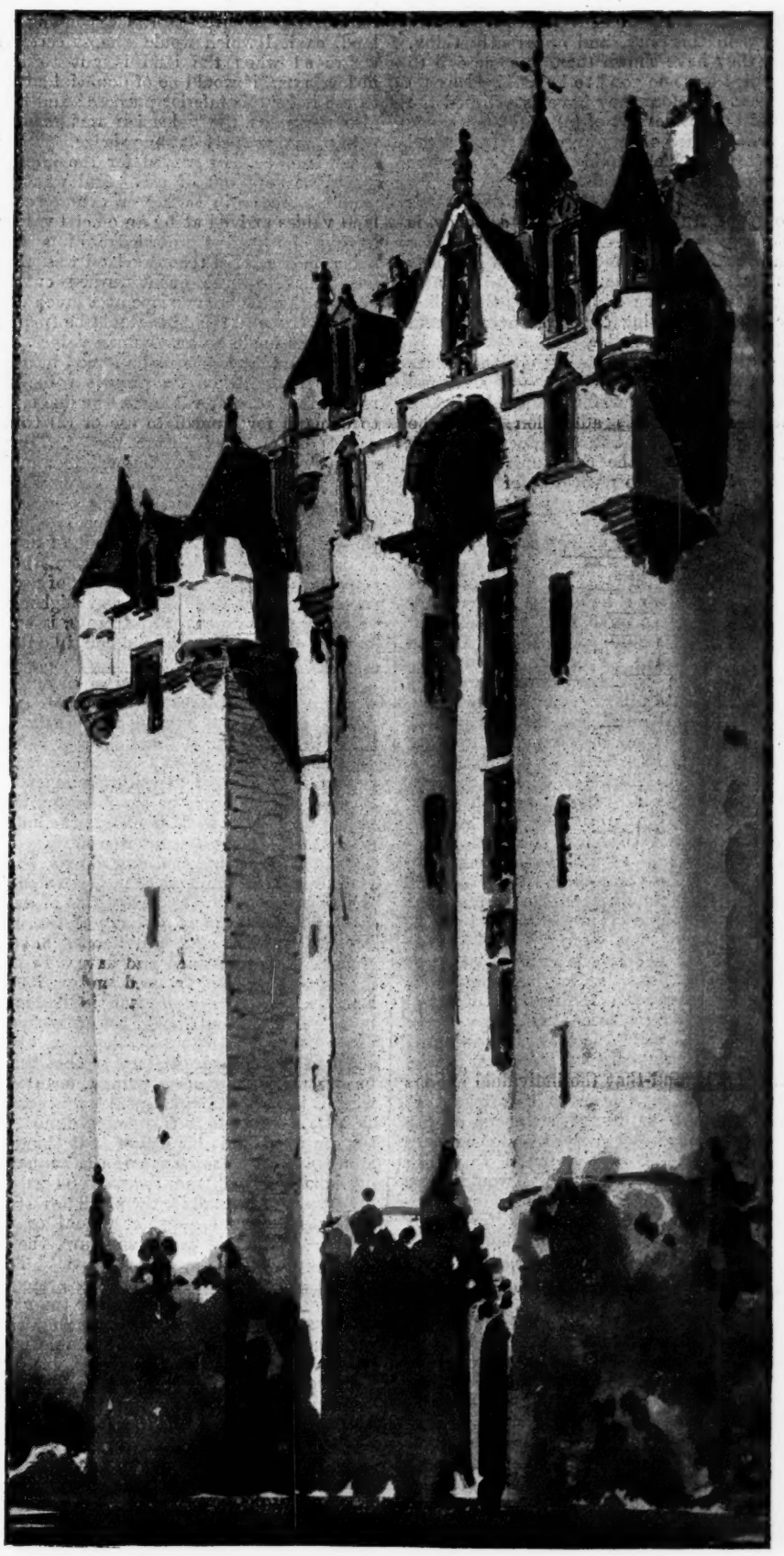
Any tax or rate on land values should be paid by every person interested in the value of the land in proportion to his interest. I quite agree that the present valuation of land requires amendments to make it suitable for the imposition of the rate or tax. Recent events in Parliament, especially when the Revenue Bill was discussed, should have made it clear to Mr. Perks what amendments are necessary. If he is interested in working out details there is plenty of material to his hand.

JOSEPH FELS.

SIR,—The rating or taxing of land values is advocated on several grounds, which may be classified as follows:—

(*a*) All land values are created by the community and not by the owners of the land, and therefore the community, in justice to itself, should "appropriate" to its own use the values thus created.

(*b*) Land is held out of use by its owners in order to obtain a higher price than its real value warrants; and if all land were rated on its real capital value, whether any income was being derived from it or not, the landowners would be compelled to put it to its best use, and the result would be, to cut it short, universal prosperity.



Part of Fyvie, Aberdeenshire.

(*c*) The present system of local rating is unjust. These injustices would be removed by rating land values.

(*d*) By a tax on the capital value of all land a large amount of revenue could be obtained—sufficient to enable us to have a free breakfast-table and to provide for increased expenditure on social reform.

It is to be noted that the objects contemplated in (*c*) and (*d*) are proposed to be attained by the purely financial method of taking, in *money form*, a certain amount of wealth from land-owners above the amount taken from other citizens of equal condition. Unless it can be shown that landowners are in some way specially responsible for the necessity of the changes indicated in (*c*) and (*d*), it would be unjust to make them pay more than other citizens. Of course, if the contentions in (*a*) or (*b*) can be proved, the money thus obtained could be justly used for the objects of (*c*) and (*d*); but in that case the benefits claimed to be obtainable by (*c*) or (*d*) should not be brought forward to establish either (*a*) or (*b*). The supporters of the rating or taxing of land values frequently transgress in this way, and apparently think, because they have shown there is some evil to be remedied or some good to be attained by (*c*) or (*d*), that therefore they have established the justice of the active part of (*a*) or (*b*).

I am not aware of any arguments advanced by land taxers which would not fall under one or other of the above heads.

I was pleased to see the statement of Mr. Fels in yours of August 22 that "if a policy is unjust there is nothing else to consider, so far as I am concerned." I take it that Mr. Fels agrees that, if the justice of neither (*a*) nor (*b*) can be established on a firm basis, the policy of the exclusive rating or taxation of ground values stands condemned.

Suppose the first part of (*a*)—that land values are created by the community—is admitted (although, for reasons which I intend to refer to later, I think this admission should be qualified), is it just that these values should be "appropriated" by the community? Land-owners have come into possession of their land in various ways; many have purchased it, some have inherited it, a few have reclaimed it from the sea, but all can show at least as good a legal title to their possessions as the owners of any other form of property can. For generations land has passed from holder to holder, and contracts for its sale have been legalised, and laws ensuring its secure possession have been passed by Parliament for centuries. Of those owners who have purchased their land some have paid for it its full present value or more, and few have paid much less than its present value. When it is remembered that most of the land in towns, in order to be put to various uses of increasing importance, has changed hands—frequently many times—at high prices, it seems extremely improbable that present owners have received much unearned increment. The proposal of the land taxers is to "appropriate" the value of the property of a section of the community, on the ground that they are in possession of property the value of which is said to have been created by the community. Let it be borne in mind that this possession has been with the continuous sanction and approval of the representatives of the community for centuries, that many of the possessors have, with the like sanction and approval, paid the original receivers of the property for it, and that the individual holders of the property have been as industrious, as law-abiding, and as useful members of the community as any other citizens, and it becomes difficult to imagine any proposal to which the term "unjust confiscation" would more properly apply.

Before discussing the proposals further, I should like to say a few words on land values. If anyone possessed certain knowledge of all future economic rents, then any piece of land would be accurately valued by taking the sum of the present values of all future economic rents to be derived from the piece of land, in the same way that the present value of an annuity is ascertained by taking the sum of the present values of the annuity payments. But, as no one can possess that knowledge, the real value of land can only be estimated; and the most important factors to be taken into account in forming an estimate are:—(1) The grade of the land, determined by the advantages which it offers for various more or less important uses; and (2) the time when the demand for its immediate use will arrive.

Let us suppose that some superior being, having perfect knowledge of the future use of land, classified all land according to its present value and graded it according to its best use. Then each class would contain some land for which there was a demand for immediate use—*i.e.*, land which would never be fit for any purpose better than its present use, the remainder of the land in the same class being different grades of land ripening at different times for more important uses. If it were not for the claim (*b*) it would be difficult to believe that anyone would contend that land destined for the use of future increases of population could be put to use before the population was there to use it; and ripening land is just the land destined for that purpose. How can such land be forced into better use by any amount of taxation? It undoubtedly has a present capital value greater than its present use justifies, just as a deferred annuity has. It may even have value for an inferior use, higher than its present use, to which it might be put during the time it is ripening; but if this inferior use requires capital expending on the land, capital which would almost certainly be destroyed when the land is put to its best ultimate use, it would be of doubtful advantage to use it for this inferior purpose; and it would also mean, as the valuation was made by a being having perfect knowledge, that some other land he had graded for the inferior use would be kept out of use. And what justice would there be in taxing or rating people on land values arrived at by an official valuer, not having the perfect knowledge of a superior being, in the belief that the land was ripening, but which, as the event turned out, never became ripe, or became ripe at a much deferred date? Cases of this kind would be frequent on valuations made by any human valuer. Those who think that land can be forced into use by rating or taxing on its present value do not realise that present value may be due either (1) to demand for immediate use or (2) to anticipated demand for future use—*i.e.*, may be similar either to (1) an immediate annuity or (2) a deferred annuity. Their words also imply that a man can sell for immediate use without there being a demand for immediate use, and that all ripening land is held out of use—that all land is ripe, in fact. The claim, therefore, in (*b*) that large areas are held out of use, based on the fact that some land has a higher capital value than its present use warrants, is unsound, and the claim that such land could be forced to a better use fails with it.

The claim (*c*) that the rating of land values would remove the injustices of our present local rating system was considered briefly in my letter in your issue of June 6 last. With your permission, I will quote a paragraph from that letter:—"Municipal expenditure must be met in some way or other by the inhabitants. The fairest way seems to be to charge the individual ratepayers (1) for onerous expenditure in proportion to their income, and (2) for beneficial expenditure in proportion to the value of the benefits received. The difficulties of assessing income locally, and of arriving at the value of benefits received by individuals, have been recognised for centuries, and have led to adopting something, widely used and visible, as a measure of the amount each individual ratepayer should contribute towards the local expenditure. No doubt whatever thing is adopted as a measure the use of that thing will be restricted, because, human nature being what it is, each individual will try to contribute as little as possible to the general fund. To do this he must limit his use of that thing which is adopted as a measure. If the annual value of buildings and land together be used as a measure, the demand for them will be restricted; if land value only—either annual or capital value—be adopted as the measure, the use of land would be still more restricted." The fact is, the evils of our present rating system have grown gradually notwithstanding the attempts made to minimise them, attempts such as lower charges on certain classes of rateable property for general district rate purposes, intended to distribute more equitably the charges for beneficial expenditure; and the Government grants-in-aid, intended to make the onerous charges more equitable. Buildings and land are not now as good a measure of either onerous or beneficial liability as they formerly were; and also the inequalities have been much more forcibly brought home to ratepayers by the great increase in the amount of local rates. But these serious evils would be intensified by the rating of site values only. The capital values of sites in use are a worse measure than the annual rents of sites and buildings, of either benefits received or of income; and infinitely worse is the case of unused site values, which, under the land-taxers' proposal, would now be first brought into charge, as they yield no income to anyone rendering them liable to charges for onerous expenditure, and as there would be no occupiers there would be no one to receive benefits. The claim (*c*) is not therefore established; it would not be just, and it would not remedy the evils complained of.

The claim (*d*), if urged apart from the justice of the claim (*a*), is a proposal to provide for the community certain benefits, and charge the cost of them on a minority of all those who are equally liable, without showing the special liability of the minority. It does not seem necessary to give a name to this proposal.

To return to the question of the creation of land values by the community. It appears to me that, taking the whole area of any country, the land values have been in the main created by the presence and activities of the people. It also seems to me that the effect of public expenditure can only be to distribute land values differently, and not to increase the total of land values, achieving this by distributing the population differently—supposing there were no increase in the total population. Under these conditions any district where population, and consequently land values, had increased would be related to another district (or districts) where the population, and consequently the land values, had decreased. The claim that because the people have, by their presence, activities, and expenditure, unintentionally increased the value of a man's land, and are therefore entitled to take that increase, should, I am of opinion, be accompanied by an acknowledgment that those whose land has been unintentionally diminished in value by the same means are entitled to compensation. This applies where there has been no increase of population in the country as a whole; it applies also to such cases as have occurred in almost every town having a tramway system. The increased site values in one district balance the diminished site values in another district. But increases of value caused by an actual increase of population in the whole country would cause no corresponding injury, and this increase the community may justly take. I have not yet heard of any plan likely to do this with so little injustice and so little cost as our present rating system already does it, as I explained in my letter in your issue of September 26.

J. W. C. A.

The Road to Ruin *via* Land Taxation.

SIR,—May I again venture to ask for some space in your valuable paper in continuance of my last letter, as the public have not even grasped the full meaning of the 1909 Budget, miscalled the People's Budget?

Mr. Fels states that there are 1,076 boroughs and urban districts having a total area of 3,884,139 acres, and that of this area 2,553,035 acres are rated as agricultural land; but he refrains from suggesting that this land is not so used. Therefore let us see what his argument amounts to, and it is, that this land, which is now used for agriculture, is all required for building, and if this be correct it is an argument that housing accommodation is required (taking four houses to the acre and five persons to each) for something like an additional population of 50 millions—*i.e.*, an additional population of more than the present entire population of the British Isles require housing in a little over 1,000 boroughs and urban districts. Would not any reasonably-minded person consider this absurd and be of opinion that it is a good thing to have this land used for allotments, market gardens, nurseries, and agriculture? Would, moreover, any thoughtful man believe that all the owners of the 2½ million acres of land are not fully alive and ready to take advantage of the benefits of having their land used for building? And that there is all this quantity of land with the various owners shows that there is nothing in the way of building if it were required, and it is that only the smallest fraction of this vast quantity that can be required.

Let us further examine the complaint he makes that all this land used for agriculture or similar purposes is under-rated and it does not contribute its proper proportion towards the services of education, poor relief, asylums, and roads. It is to be presumed that, in order

to be equitable, the contribution ought to be based somewhat on the benefits received, and it must be admitted that agricultural land requires far less roads than land occupied by houses, and that lighting, sewers, police, education, etc., are all considerably less required in proportion; and it must be noted that, beyond what is paid by way of rates for the land itself, the farmer, nurseryman, market gardener, and allotment workers all pay their full proportion for the houses they live in. The subtle suggestion that taxation ought to be taken into consideration on basis of area is misleading, and, though this is not so stated, the argument is put in such a way as to lead the casual reader somewhat astray, although I do not say it is done so intentionally.

What, then, is to be the result of this taxation of land used for the production of food and for which there cannot possibly be a demand for building excepting only as to an extremely small fraction thereof? The result will be, as has been stated by the Radical M.P., a member of Mr. Fels's society, that where you tax the land the tax is passed on to the person who consumes the thing which is produced on the land, and thus we have from Mr. Fels and his friends a demand for a tax on the food of the people; but he will state to the poor man that he relieves him from other taxes for a greater amount. If, however, this is so, I shall be surprised, and it will be the rich man who will get the greater part of any benefit, if there is ever to be any such benefit—which I much doubt.

Mr. Fels's idea of taxing land to make it cheap is contrary to what all his Free Trade friends have stated, but later on I will endeavour to work out in detail an example of an actual case on the basis of Mr. Fels's ideas, so far as we are able to glean them from his more or less vague generalities; and as he does not, will not, or cannot give any further information, this is the best I can do to understand him.

My contention is that the importer of foreign manufactured goods does not contribute as he should to the services of police, roads, etc., for which he indirectly obtains large benefits.

I draw attention to the way this tax of ½d. in the pound of capital value is operating in the case of a member of a friendly society in the Midlands, who writes to inform me that he and his sister bought two plots of land in the hopes that some day they might be able to build on the same; but at present there is no demand for the land for building, and in the meantime they had divided the same into seven plots and let six of them at a rental which totalled 30s. per annum, or, adding the plot retained for their own cultivation, the total would be 35s. per annum. Now, the tax which has been made on them for the ½d. in the pound tax amounts to 9s. 6d. per annum, and the reader should recollect that what Mr. Fels proposes is very much more than ½d. in the pound. What is it likely to be on these poor people? Can it even be said that the land is not used in the best way?

As an example of the absurd idea of basing a tax on site value, as set out by the Government valuation, I can instance a case where the assessable site value has ben put at 75 per cent. too high in consequence of having been improperly valued, and, although I know the circumstances as surveyor for a previous owner, the present owner had no means of knowing the facts or proving them, and when I communicated with him the valuation was settled and it was too late. Here, out of every 20s. paid 15s. will be a tax on improvements.

In order to ascertain as far as possible the result of Mr. Fels's ideas I have made the following calculations:—

First, under the old system of rating and taxation, take land valued at £100, buildings, etc., costing £400—total, £500. Assume as freehold in times before land taxation unrest, interest at 5 per cent. and a rental value of £25, add taxes, about £9—total, £34 annual cost to occupier. I exclude repairs to simplify comparison.

Under the new system propounded by Mr. Fels there is given no data as to the amount of tax on capital value of the land, and this has to be a matter of conjecture. It may be taken to be something like 5d. in the pound on what I will call the original capital value, but to simplify matters I take 4⅓ of a penny, as this gives a tax of exactly £2 per annum on the original capital value of £100. Now, as the ordinary income value of the £100 in land at 4 per cent. equals £4, it follows that if you put on a tax of £2 the capital value would be reduced mathematically to £50. It is to be calculated that the effect of this tax will be to reduce the capital value much more than the mathematical proportion—indeed, this is Mr. Fels's suggestion—and purchasers of land would then want a larger rate of interest, so that it may be taken that it will probably reduce the value of the land from £100 to, say, £30, and this is arguing in favour of Mr. Fels's contention (of course, subject to what I say later on).

Now, let it be assumed that a purchaser acquires this land for £30, and he proposes, when purchasing, to build, and he wishes to ascertain if it will be a wise investment, etc. He will put down:—

Land, £30; cost of building as before, £400, and 10 per cent. increase in the wages of building and cost of materials, which Mr. Fels states will take place, £440—total cost, £470.

Thus there is a saving in the capital cost of £30; but we must see how it works out as to annual cost, and the prudent man will want to know if he is likely to get his money back should he want to sell and will inquire hereon. From well-known experience and the large amount of mistrust created the investor is no longer satisfied with the interest as of old, and at least 2 per cent. more interest will be required—in this case of comparison it makes 7 per cent., and 7 per cent. on £400 equals £33 18s. per annum. Then there is the £2 tax on the land, which makes a total of £35 18s., which is the rental the premises must command if the prudent man will build, and consequently the amount per annum that the user must pay. It will thus be seen that this is a larger sum than under the old system.

It must not be forgotten that some rates or taxes must still be paid—the land tax is only to relieve part (although we cannot gather what part) of these. Let us, however, assume that the rates will be only £4 instead of £9 (this a greater reduction than is probable). Then we have a total necessary expenditure annually, or annual cost to the occupier, of £39 18s. on Mr. Fels's ideas as against £34 under the old system. It will thus be seen that if the rental value of the house, including rates, does not amount to £39 18s. no prudent owner would build under Mr. Fels's system.

I have not calculated anything for the enormous extra expense which will result in the double and intricate system of rating, etc. There is to be considered the fact that, if the owner of the land has to pay part of the rates of the house, the rental value of the land, which would include part rates, would increase; but, as this is a matter which would operate against the contention of Mr. Fels, I have eliminated it as a matter for consideration, and have given him the fullest advantage in calculation of reduction in value on cheapening the land.

It must be well known that where the owner of a freehold house lets it, and knows that he has to pay part of the rates as appertaining to the land, it is a matter which will proportionately operate in the fixing of the rental.

Upon the question of the increase of wages, I do not agree that this will result from Mr. Fels's ideas, but was bound, in justice to him, to take it into consideration; if, however, he be, as I think, in error on this point, it would reduce the capital cost of the house erected under his system of rating by £40 and the annual cost by 28s.; but even then his cost to the user is higher.

One item in the purchase of house property, as compared with other investments, is a loss of 10s. in every £100 invested, where the purchase price is over £500. It is thus the Lloyd Georgian encourages home investments. This tax, though not on purchasers of the smaller amount, has an injurious effect on small property, as it falls upon the man who buys two houses at the same time, and in affecting the market it influences injuriously the price of the single house, and eventually it will operate to cause an increase of rent, which must be borne by the tenant or user, to cover this tax.

One word of caution. The inner meaning of the whole matter is—confiscate the land. Let those who doubt it remember this. The prudent will not be deceived, and in reading the beautiful promises under generalities will remember that words are sometimes used to conceal thoughts and intentions.

FRANK PERKS.

GENERAL NEWS.

Plumbers' Company.

Mr. W. D. Caröe, F.S.A., has been elected Master of the Plumbers' Company, in succession to Alderman Sir Vezey Strong, and Dr. F. J. Waldo (City Coroner) and Mr. Edmund Knight have been elected Wardens.

Lectures on "Renaissance Architecture."

Mr. Banister Fletcher, F.R.I.B.A., is giving a course of twenty-four University Extension Lectures on "Renaissance Architecture" at the Victoria and Albert Museum. In the first lecture he said that architecture had become a necessary part of a general education, for architecture is a material exponent of civilisation, and a record of human aspirations and activities. Thus, a knowledge of architecture should form part of the equipment, not only of the architect, but of artists and craftsmen, antiquaries and connoisseurs, photographers and journalists, and even of authors, for a story without the *mise en scène* supplied by buildings is like a play without a stage. Teachers now realised that architecture was more necessary than dates for understanding general history and the social life of our ancestors. For the traveller, too, such knowledge was essential to appreciate the purpose and design of the buildings and ruins that he visits.

Arbroath Abbey.

The operations of the workmen who are at present engaged upon the walls of Arbroath Abbey with a view to preserving the building have exposed some fine arcading on the west or exterior wall of the south transept, near the cloisters. The arches, which are seven in number, had apparently been built up many years ago. The other or interior side of the wall is similarly arcaded, but the arches on that side are in an excellent state of preservation.

Cardiff Law Courts.

The City Engineer of Cardiff, Mr. W. Harpur, has presented to the Property and Markets Committee of the Corporation a Report on the ceilings of the Law Courts. Mr. Harpur said it had been found necessary, during the vacation, to repair several ceilings in the Law Courts and City Hall. The fall of a portion of the ceiling in the Nisi Prius Court on the 14th ult. was of very considerable extent, and consisted of the major portion of the centre panel, about 15 to 20 super. yds. in area, and of a thickness up to 1½ in. Had this occurred while the court was occupied the results might have been most serious, and possibly several lives lost, as would be realised from the fact that some of the oak desks were smashed, and the iron brackets supporting the same broken and bent into all shapes. He had made a superficial examination of all the rooms in the City Hall and Law Courts, but he would point out that the ceilings could not be properly tested without scaffolding, and, if scaffolded, the testing and repairing should be done at one operation, otherwise the cost would be considerably increased. He understood that the clerk of the works for the two buildings (the late Mr. E. C. Howell) had insisted upon having the whole of the ceilings finished perfectly true and level, notwithstanding the variations of the levels of the underside of the concrete, and the result was that the plastering was uneven in weight and very thick in places owing to saggings and variations in the concrete. Where repairs had been carried out it had been generally found that there was too great a body of plaster and insufficient key to secure adhesion to the underside of the concrete. Experience showed that ceilings came down when least expected, and as several of them were under suspicion he was bound to recommend that the whole of the principal rooms should be thoroughly tested from scaffolding and thoroughly repaired before the scaffolding was removed, taking down and renewing the whole of the ceiling in each case, if considered necessary. "In conclusion," said Mr. Harpur, "I must say that I do not consider that any of the ceilings in the City Hall and Law Courts can be considered as absolutely safe until they have been taken down and renewed as suggested above." It was decided to proceed with the work of testing and renewing in the Law Courts at once, and to have a further report with regard to the City Hall ceilings.

Leading Contents.

	PAGE.
MODERN ARCHITECTURE AND THE CRAFTSMAN	359
TOSCANELLA	362
THE NATURE OF BEAUTY	364
THE SCOTTISH STYLE.—III.	365
EXHIBITION OF LETTERING	370
THE CAUSE AND PREVENTION OF DAMPNESS IN BUILDINGS	371
ECONOMY IN ROOF DESIGN	373
TRADE UNIONISM AND CO-PARTNERSHIP	375
ARCHITECTURE AND THE STAGE	378
WORKMEN'S COMPENSATION STATISTICS	378
TWO HOUSES, WIMPOLE-STREET, W.	379
BOOKS	379
THE NATIONAL GAS CONGRESS AND EXHIBITION, 1913: INTERNATIONAL EXHIBITION HALLS, SHEPHERD'S BUSH, W.	380

ILLUSTRATIONS.

Cathedral Church of St. Paul, Kampala, Uganda.

AN internal view of the design for the Cathedral was published in the *Builder* last year.

The sectional perspective now illustrated from the Royal Academy Exhibition is made to show the brick vaulting and method of roofing.

The central and eastern portions of the building which are now in hand are being erected of bricks from brickfields and works set up for the purpose in the neighbourhood by the Committee.

The general thickness of the walls is 3 ft., and the vaulting ribs are to be of brickwork filled in with light concrete.

Wretham, Norfolk.

THIS house is being built at Wretham, in Norfolk, on the site of a modern house burnt down some twenty years ago. The materials are small red bricks with Portland stone plinth, doorways, and top coping, all the rest, including the main cornice, being carried out in brick. As originally designed, the house was in two stories, with a lofty room containing the attic story and a lofty clock turret in the centre. This has since been altered to the design illustrated.

The contractors for the building are Messrs. Holland & Hannen. For the floors, Messrs. Frank Fawcett; for the plumbing, Messrs. Dent & Hellyer; for the plaster-work, including a red "lacquer" dining-room, Messrs. Jackson & Sons; for the carving, Messrs. Chemonier.

The architect is Mr. Reginald Blomfield, A.R.A., of New-court, Temple, E.C.

House in the Grand Duchy of Luxemburg.

THIS house has not yet been built, owing to difficulties in connection with the site. Local materials were to have been used as far as possible. ERNEST NEWTON.

S. Pietro, Toscanella.

THESE illustrations are given in connection with an article on Toscanella, by Mr. F. Hamilton Jackson, which appears on p. 362.

MEETINGS.

FRIDAY, OCTOBER 10.

Architectural Craftsman's Society, Glasgow.—Mr. Alexander Gardner on "City Churches."

MONDAY, OCTOBER 13.

University of London (Victoria and Albert Museum).—Mr. Banister Fletcher on "Renaissance Architecture: A Comparative Analysis of Gothic and Renaissance Architecture." 5 p.m.

Royal Sanitary Institute.—Mr. Alan E. Munby on "Elementary Science: Physics, Chemistry." 7 p.m.

TUESDAY, OCTOBER 14.

Institution of Heating and Ventilating Engineers.—Autumnal general meeting, in the Botanical Theatre of University College, Gower-street, W.C. 7 p.m.

WEDNESDAY, OCTOBER 15.

Royal Sanitary Institute.—Mr. Alan E. Munby on "Elementary Science: Physics, Chemistry." 7 p.m.

THURSDAY, OCTOBER 16.

University of London (Victoria and Albert Museum).—Mr. Kaines Smith on "The Nature of Beauty: Beauty and Technique." 3.30 p.m.

University of London (British Museum).—Mr. Banister Fletcher on "Ancient Architecture: The Sphinx, Pyramids, and other Tombs." 4.30 p.m.

FRIDAY, OCTOBER 17.

Royal Sanitary Institute.—Provincial sessional meeting, Newcastle-on-Tyne.

Royal Sanitary Institute.—Mr. Edward Willis on Building Materials." 7 p.m.

EXHIBITION OF LETTERING.

THE importance of good lettering (an ugly word, but too useful to be altogether avoided) to architecture has always been recognised, but the interpretation placed on the word "good" has gone through some astonishing variations. The differences in treatment which are demanded by written, printed, and cut letters have not always been recognised very clearly; indeed, in that curious period known as the Early Victorian "artistic" treatment consisted in making incised letters look like pen-written letters, and pen-work look like stone-work, or anything but what it was. Thanks chiefly to the efforts of William Morris, who did so much in every direction for decorative art, we have emerged once more into the light, as the present exhibition at the South London Art Gallery clearly demonstrates. By means of rubbings, photographs, and actual examples of inscriptions cut in stone and marble, we are able here to compare our best modern work with what must always be the standard—Roman work. And we think we may congratulate modern craftsmen on being very little behind that standard, either in skill of cutting or in the forms and proportions of their letters, and their disposition in the space they are designed to occupy.

The examples of written work also are quite admirable. The writers have succeeded in the by no means easy task of making their letters simple, legible, and at the same time decorative. They have nearly all learnt the importance of correct proportions between the space occupied by the writing and the size and shape of the page. Many people seem to think that the invention of printing has reduced formal writing to the idle amusement of a few faddists and a pretty trick for the embellishment of illuminated addresses. We are convinced that this is not so. The written letter is, and always will be, the basis for the printed form. And experience shows that the printed form is apt to degenerate hopelessly unless it receives constant impulses from the more individual hand-written characters. Besides which, we regard it as little short of a crime to let any beautiful handicraft sink into oblivion. The modern world is ugly enough and dull enough to make us carefully preserve every scrap of beauty we can.

One wall is devoted to a special collection of modern German printing. Whether the authorities responsible for the exhibition have placed it there as a horrible example of misdirected ingenuity we have no means of knowing, but horrible it certainly is. Letters are distorted almost out of recognition. The spacing is deliberately made as curious and unexpected as possible. Decorative borders and details twist and writhe in contorted tangles, which give the beholder a feeling of physical pain. We are sorry, but we can find nothing agreeable to say about it.

On the same wall hangs a reproduction of a sonnet printed by Plantin and hung in his workshop. Plantin of Amsterdam, says the catalogue, possibly correctly, but we seem to remember seeing the same sonnet in the Musée Plantin in Antwerp. However that may be, it is a choice piece of printing, and we like the matter of the poem so much that we append below the words of the first verse for the benefit of those who may not have seen it before :—

Le bonheur de ce Monde.
Avoir une maison commode propre et belle
Un jardin tapissé d'espaliers odorans.
Des fruits, d'excellent vin, peu de train, peu d'enfans,
Posseder seul sans bruit une femme fidèle.

COMPETITION NEWS.

It must be understood that the following paragraphs are printed as news, and not as advertisements; and that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that may occur.

The list of current Competitions is printed on page 382.

Llandough Hospital.

The appointment of an architect for the proposed new Llandough Hospital, Cardiff, has been considered. The Building Committee had considered twelve applications for the position, and the following, selected for interviews, appeared before the Board :—

Messrs. Ivor Jones, A.R.I.B.A., and Percy Thomas, of St. John's-square, Cardiff, architects for the new Cardiff Technical Schools.

Mr. Edwin Seward, F.R.I.B.A., Queen's-chambers, Cardiff, the architect to the Board for the usual requirements of the Union.

Mr. Cholton James, F.R.I.B.A., Charles-street-chambers, Cardiff.

Mr. Fred J. Veall, Arcade-chambers, High-street, Cardiff.

Mr. Sidney Williams, M.S.A., Lic.R.I.B.A., Borough-chambers, Wharton-street, Cardiff.

The final vote was between Mr. Seward and Mr. Williams, with the result that the former was elected. The hospital is to be constructed for the accommodation of 350 patients.

Fire Station, etc., Blackpool.

Eleven sets of plans by local architects have been sent in for competition for the new fire station and firemen's dwellings, to be erected on the plot of land known as the Wrangling, in Blackburn. Mr. F. G. Briggs, the assessor appointed by the Corporation, will make known his award shortly.

School at Yeovil.

At a meeting of the Yeovil Education Authority the Schools Committee reported that they had considered the competitive designs sent in by architects for laying out the Kiddles-lane site and erection of school premises thereon, and they resolved unanimously that, subject to the approval of the Town Council, the plans bearing the *nom de plume* of "Sun and Air" be adopted. On the sealed envelopes being opened, "Sun and Air" was ascertained to be the *nom de plume* of Messrs. Petter & Warren, Yeovil. The Clerk was instructed to have copies of the plans forwarded to the Board of Education for approval.

Baths, Finchley.

The assessor, Mr. H. W. Wills, F.R.I.B.A., has given his award in this competition, for which eight firms of architects submitted plans. The award, which the Council have adopted, is as follows: First, Mr. A. W. S. Cross; second, Messrs. Williams & Cox; third, Messrs. Richardson & Gill.

Cottage Homes, Cheadle.

Mr. T. Bibby, of Cheadle, has been appointed architect for the proposed cottage homes by the Cheadle Board of Guardians.

BOOKS RECEIVED.

COLLECTED ESSAYS AND PAPERS RELATING TO FREEMASONRY. By R. F. Gould. (Belfast: William Tait. 21s. net.)

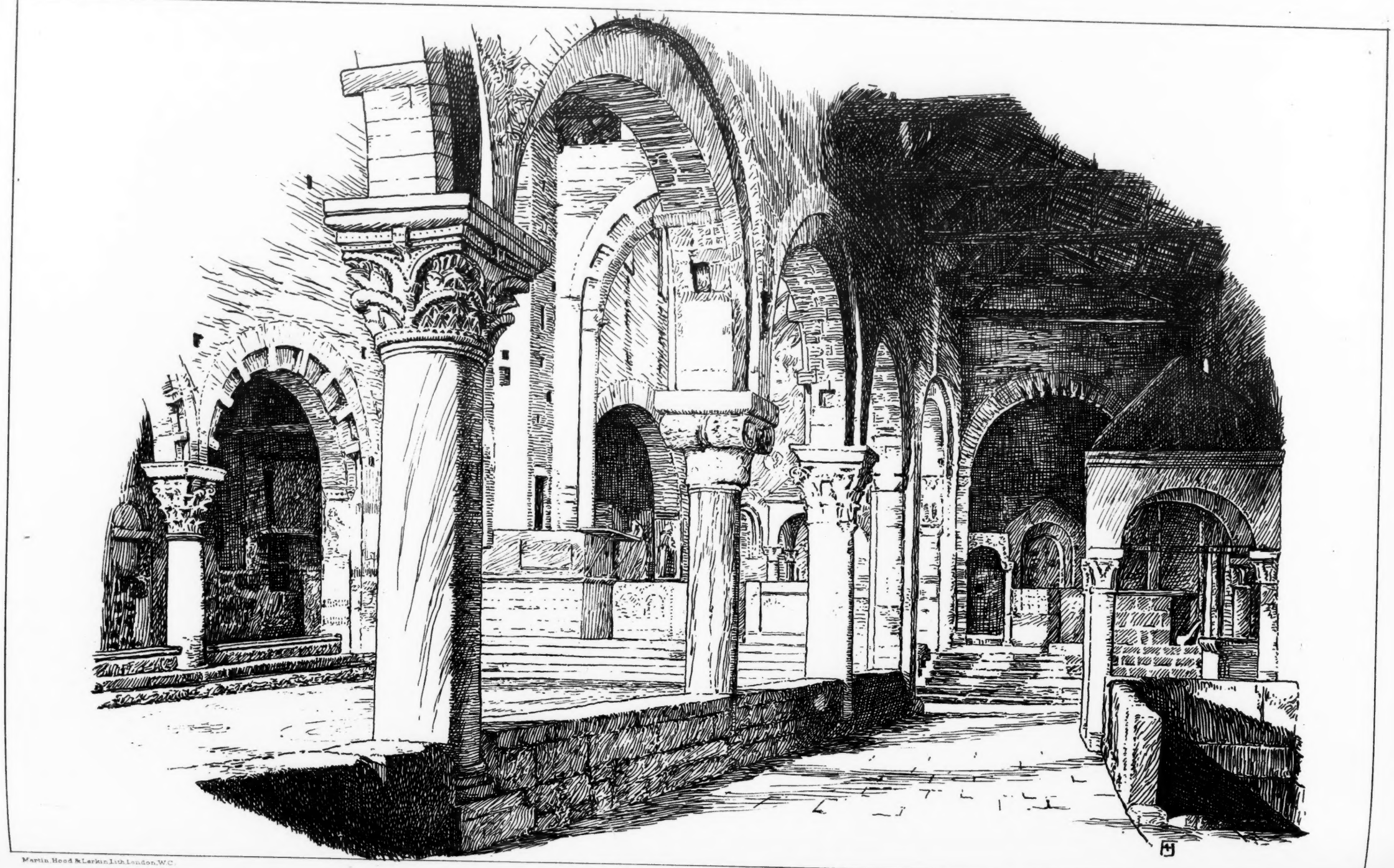
THE HISTORY OF THE ROYAL SOCIETY OF ARTS. By Sir Henry Trueman Wood. (London: John Murray. 15s. net.)

FIFTY YEARS AGO.

From the *Builder* of October 10, 1863.

OUR lords are every now and then giving their practical testimony to the nobility of manual employment. One day we find a lord hard at work, expending his noble surplus energies in the usual labour of extinguishing conflagrations. At another time we find one working busily in a ship-yard, like Peter the Great, and highly ambitious to become the head of an eminent ship-building firm. Again, we see a truly manly lord inventing and constructing a "fire-horse" for common roads, and traversing the country with it, as the engine-driver, with his wife beside him. This same nobleman, the Earl of Caithness, whose practical knowledge of the steam-engine is well known, was the other day going by train from Edinburgh to London, to accompany her Majesty to Scotland, when an accident happened by which his lordship's acquaintance with steam was turned to good account.

*** The above paragraph may suggest a fertile field for the activities of the Upper House, now deprived of some of their functions, and, incidentally, a means not yet considered by the Board of Trade of safeguarding railway travelling.—ED.

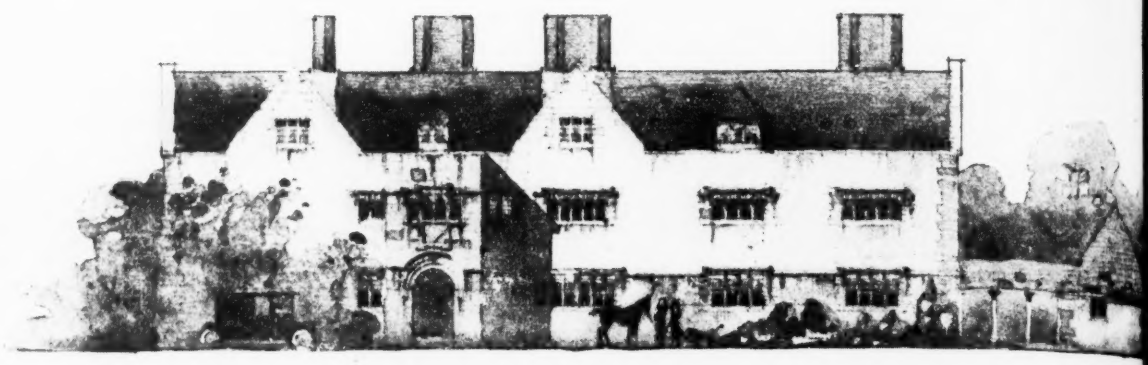


Martin Hood & Larkin lith London, W.C.

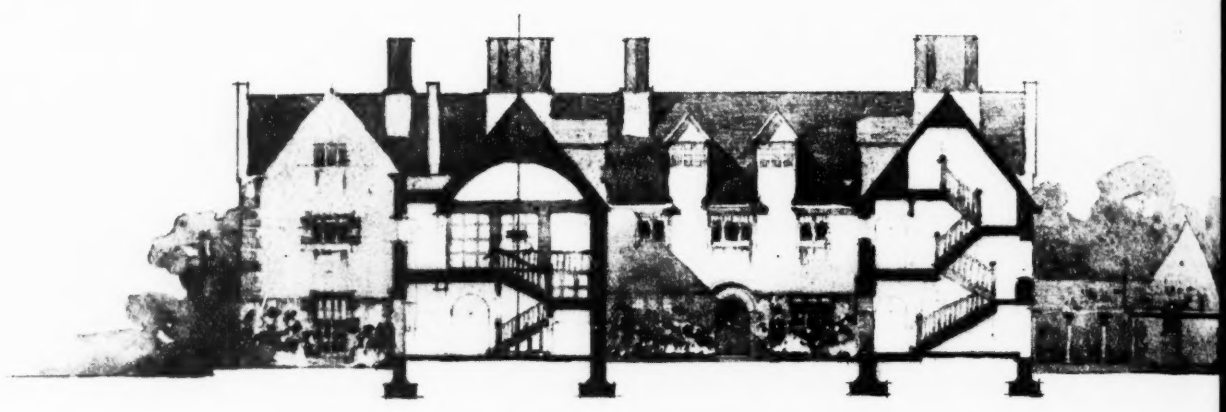
S. PIETRO, TOSCANELLA: INTERIOR.
FROM A DRAWING BY MR. F. HAMILTON JACKSON.

S. PIETRO, TOSCANELLA: INTERIOR.
FROM A DRAWING BY Mr. F. HAMILTON JACKSON.

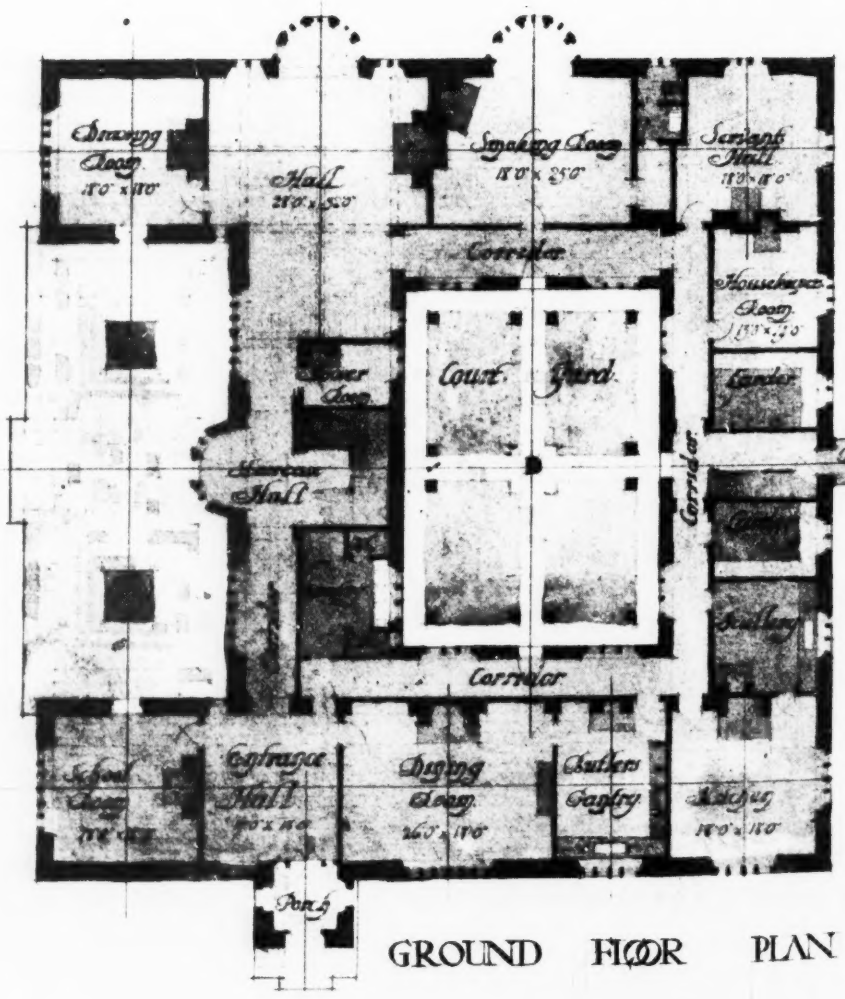
Marcus Ward & Co. Limited, London & Belfast.



EAST ELEVATION



SECTION A.A.



GROUND FLOOR PLAN

CYRIL A. FAREY.
DELT

Ernest [illegible] A.R.A.
4 [illegible] Buildings
Grays [illegible] London W

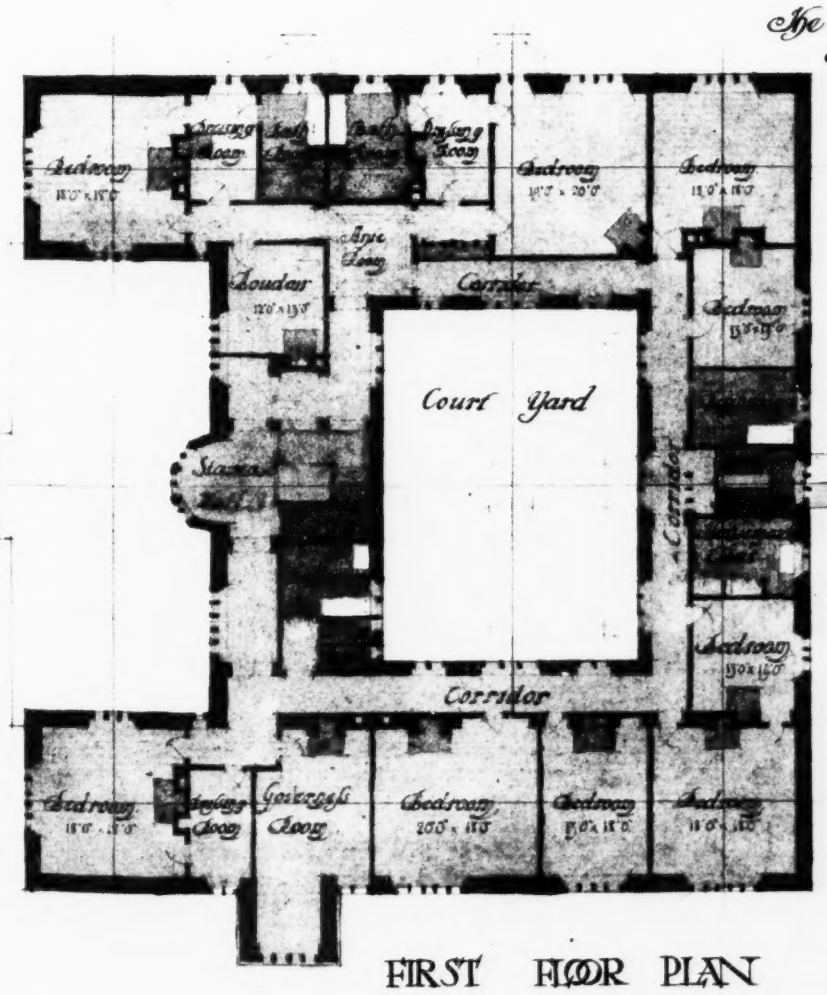
Royal Academy Exhibition, 1913.

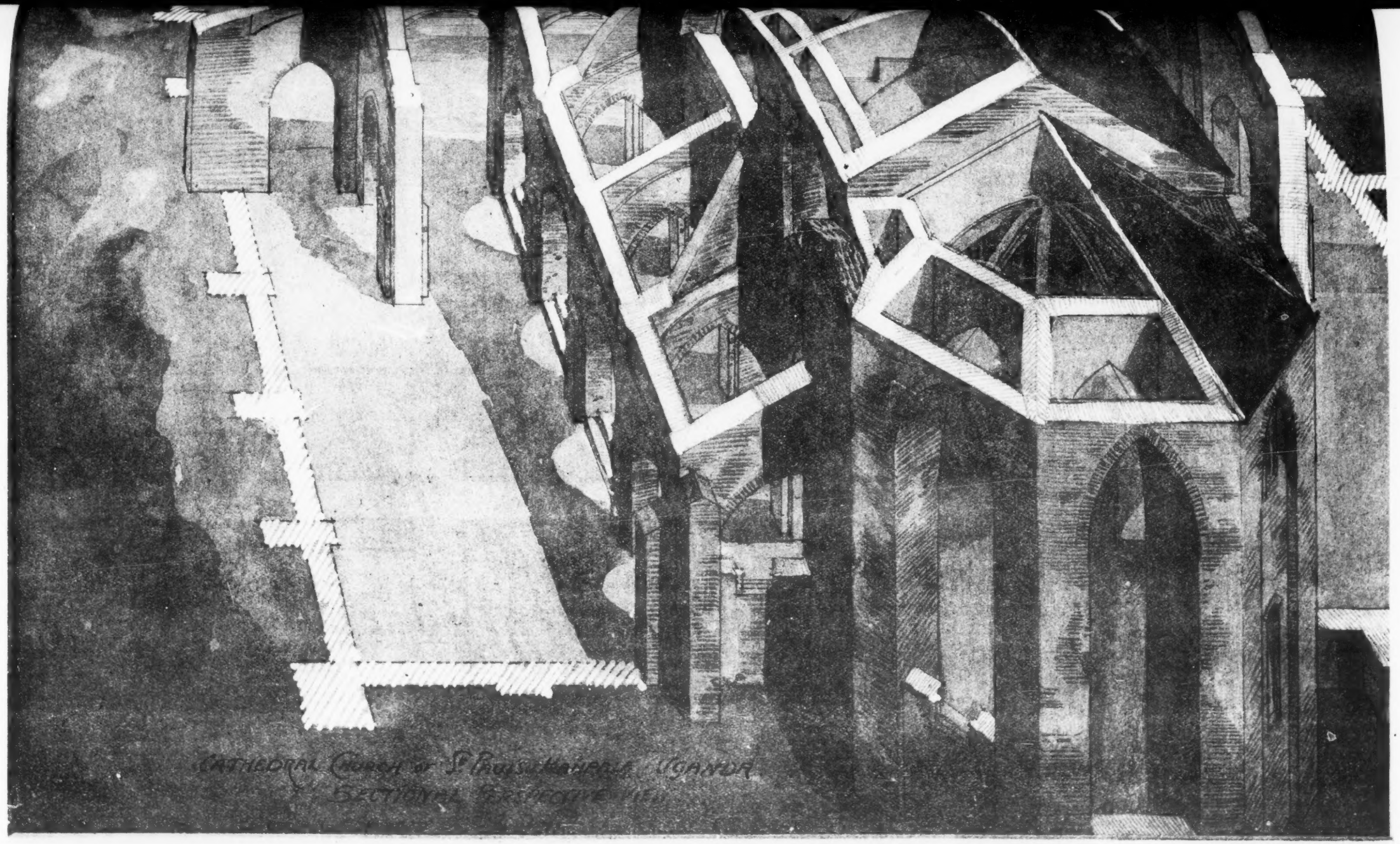
SOUTH ELEVATION

HOUSE in the GRAND DUCHY of LUXEMBURG
for Madame Renée Muller Laval.

Scale of Feet.

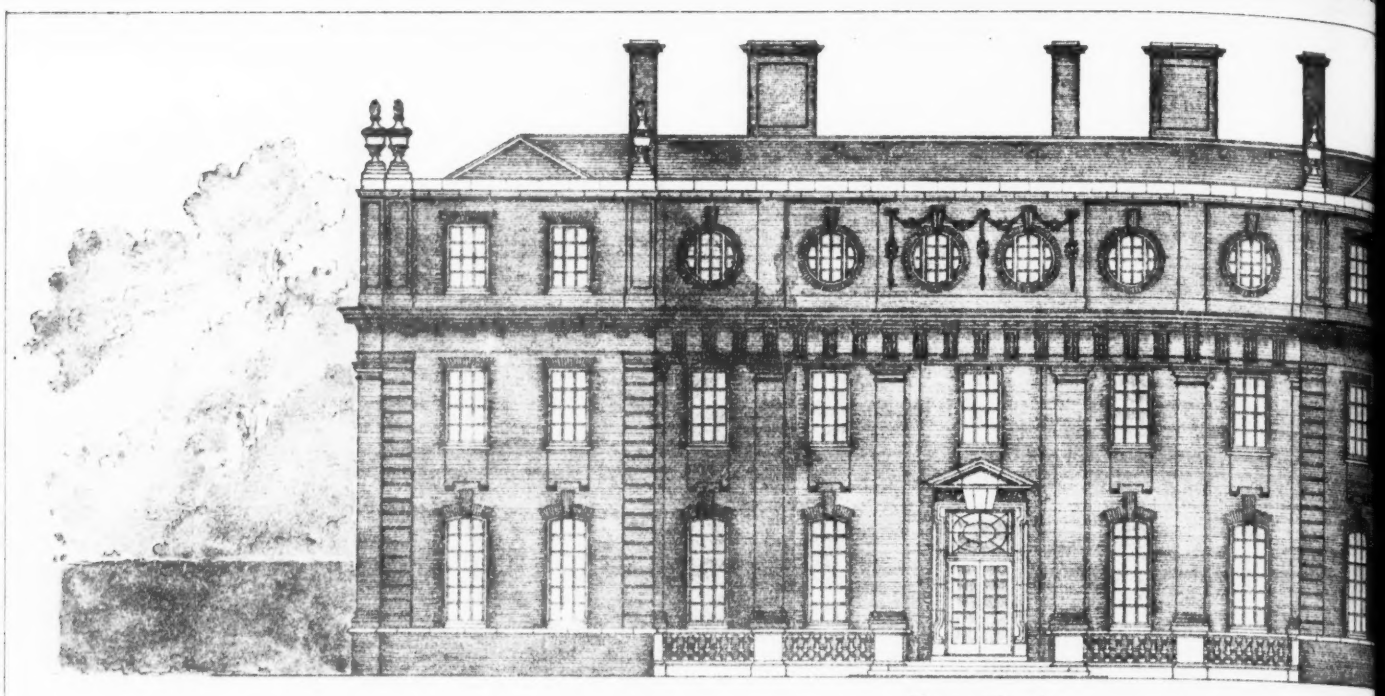
Note:
The Servants Bedrooms are in the roof attic over B.B. and C.C.


B
B
A
A
C
C
Court Yard
Corridor
Corridor
Corridor
Bedroom
Bedroom
Bedroom

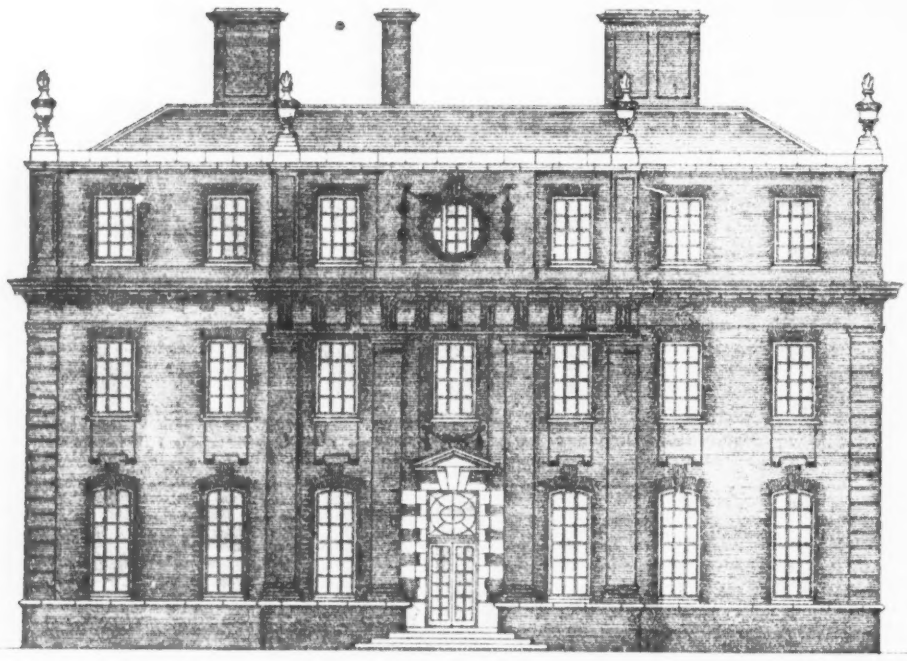


Royal Academy Exhibition, 1913.

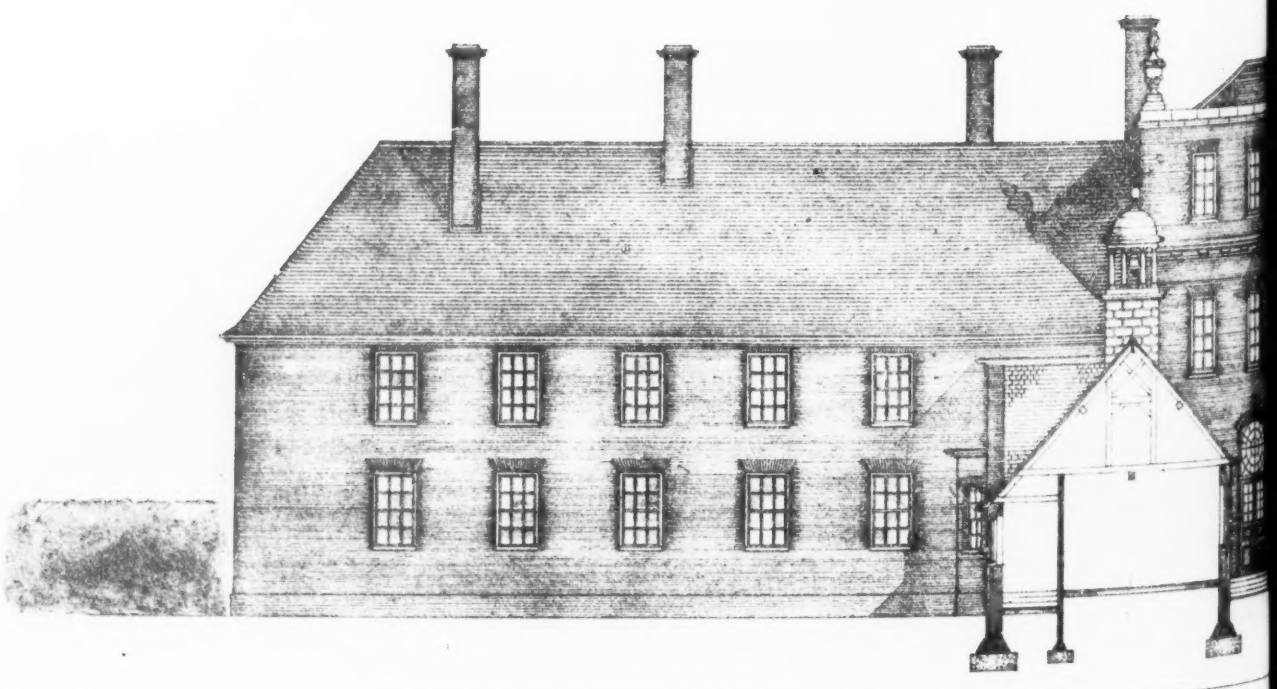
UGANDA CATHEDRAL: SECTIONAL PERSPECTIVE.—Professor Beresford Pite, F.R.I.B.A., Architect.

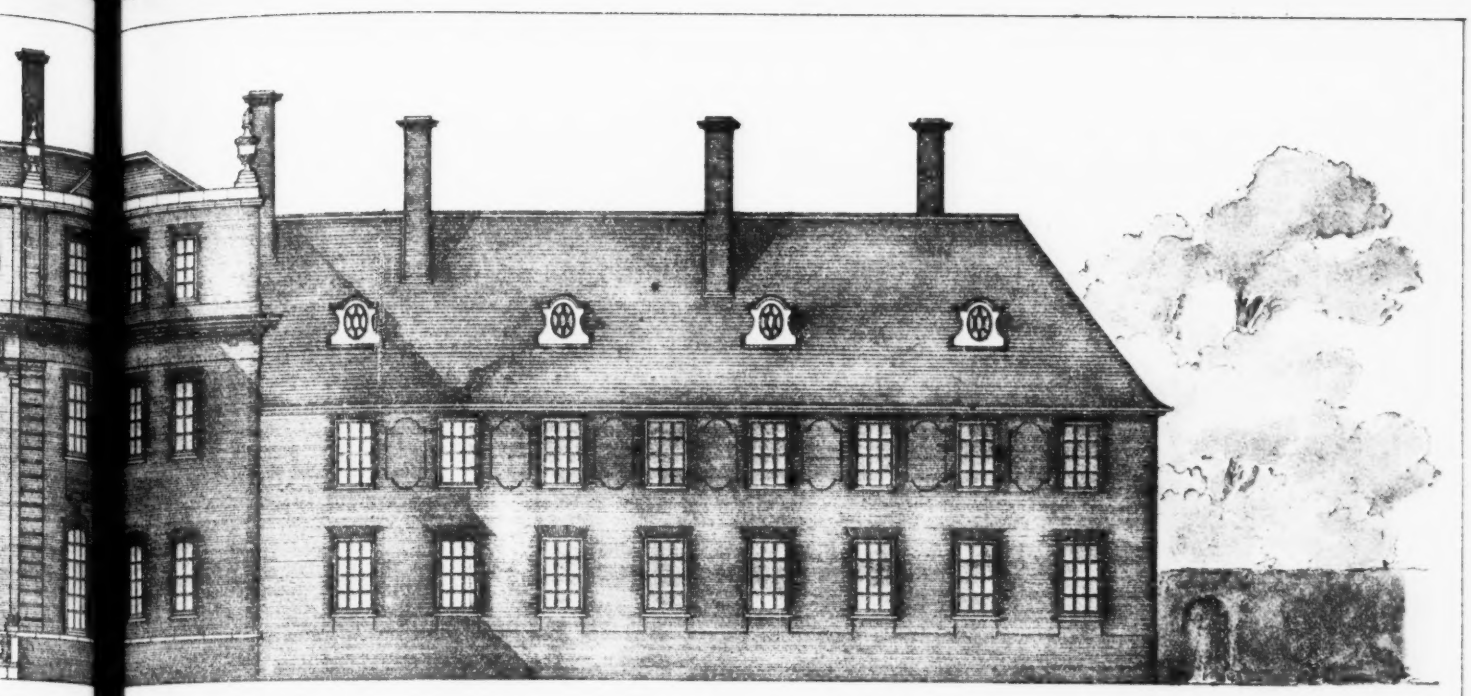


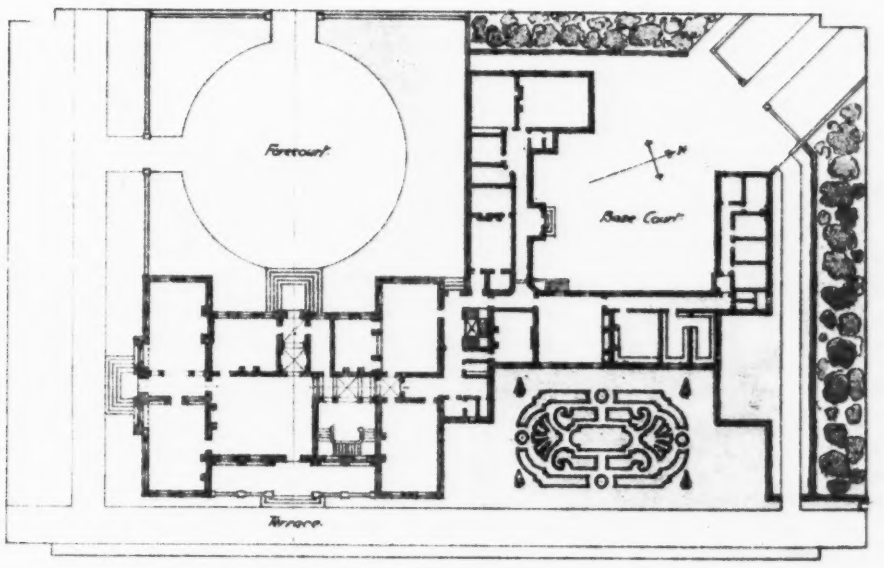
East Elevation.



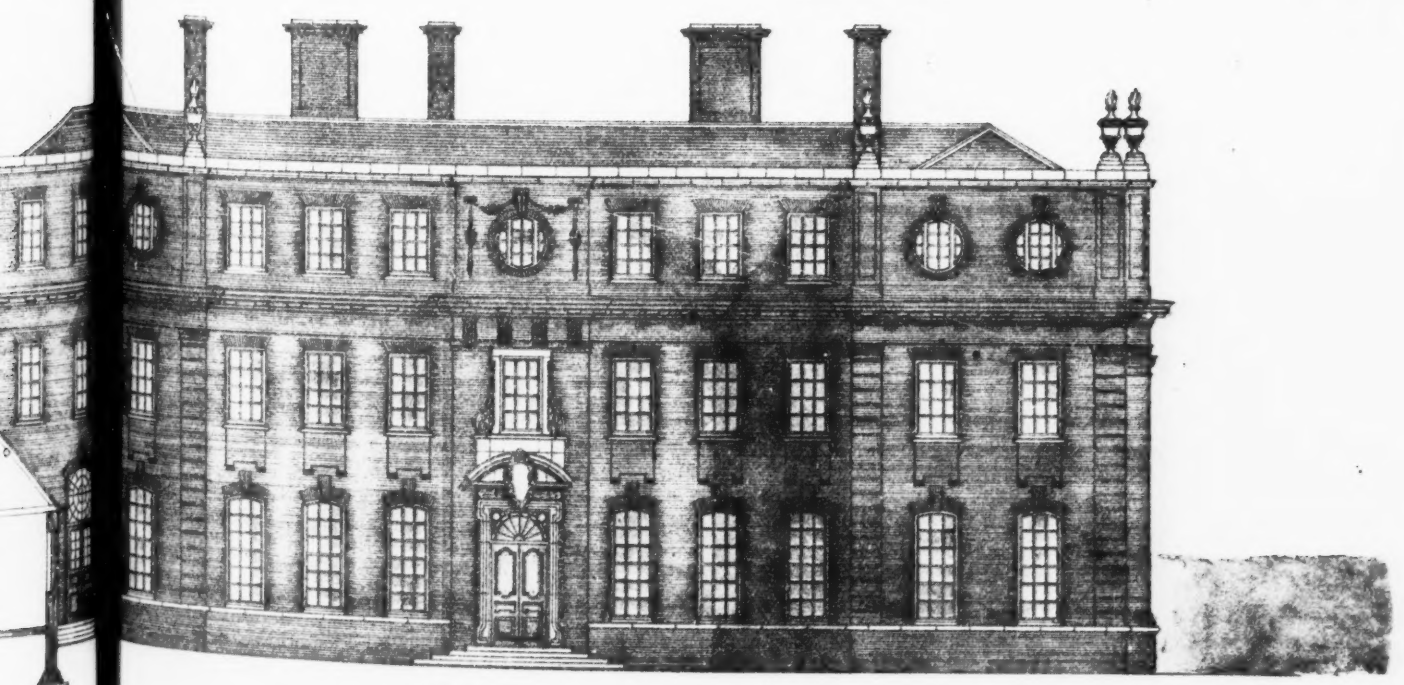
South Elevation.







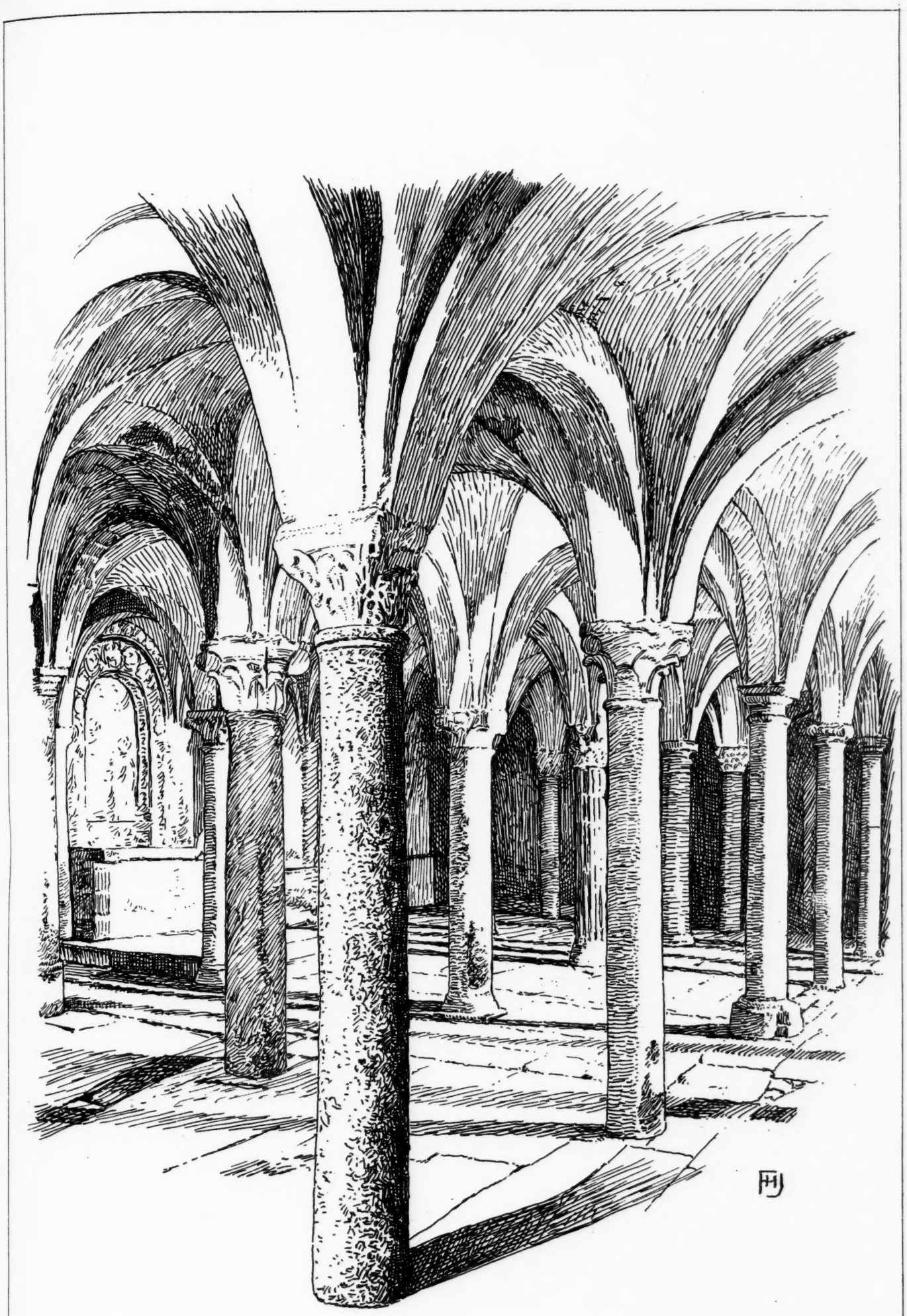
General Plan



West Elevation

Martin Hood & Clarkson Lith London W.C.

Martin Hood & Lord



Martin Hood & Lerkin Lith. London, W.C.

S. PIETRO, TOSCANELLA: THE CRYPT.

FROM A DRAWING BY MR. F. HAMILTON JACKSON.

CO

THE CAUS OF DAMP

ONE of t observe of keepi of the structure. by (1) there bei damp rising fron against the wal porous parapet rains against wa roofs, and other state of repair b last cause, whic attempt after the any of the othe struction is a co the cost of inser a wall constructe six to one, acco compared with th time of erecting t

The provision towns a necessity ing one, and so common use for course of slates in bricks, glazed sto asphalted felt, costing from abou bituminous sheeti unit for thick she

The chief point proof course cove in the case of sla quality and corre properly bedded each with ceme Portland cement appearance' sake, for rain, moss, et kept back ½ in. on the damp-proof co with a flush joint. taken to ensure th new ones at that), a joint occurs; then when set at this po wall by capillary a

It would appear a damp course of matter wherein a made, and, as usu errors impossible covered up. The c spread over the wa by the labourer wit failing that, by the and at this point the the laying of the sla practice for him to compo across and series of small ruts put the slates, tap edge or the handle remain and set as s have bearings at surface and invaria points. This appe when measured by of great magnitude.

Sheet lead as a most expensive, as than 5 lb. per foot on which it is laid r the roughness of th through it, but at t allows it to adapt its the surface on which tage of this material that under heavy loa where this occurs th the edges, for which between the beds of pillar is now rarely u

The cost of layi certainly cheap, as i width required, and position is a simple tage, however, is a inserted into a wall b can be rolled up and Fig. 1; but generally have to be inserted t brickwork is so high t

CONSTRUCTION SECTION.

THE CAUSE AND PREVENTION OF DAMPNESS IN BUILDINGS.

ONE of the most important points to observe in building operations is that of keeping dampness out of all parts of the structure. The dampness may be caused by (1) there being no damp-proof course, (2) the damp rising from the ground, (3) the damp earth against the walls, (4) rain soaking in through porous parapet walls and copings, (5) driving rains against walls, (6) burst pipes or leaks in roofs, and other causes avoidable by a proper state of repair being maintained. Beyond this last cause, which should never obtain at all, to attempt after the building is occupied to remedy any of the other five omissions or faulty construction is a costly operation. For example, the cost of inserting a damp-proof course into a wall constructed without one being as five or six to one, according to the material used, as compared with the cost of putting one in at the time of erecting the building.

The provision of a damp course is in most towns a necessity, the building by-laws requiring one, and some of the materials in most common use for this purpose are a double course of slates in cement, sheet lead, hard blue bricks, glazed stoneware slabs or tiles, asphalt, asphalted felt, etc., such damp courses laid costing from about 3d. per foot superficial for bituminous sheeting (in rolls) to 1s. per same unit for thick sheet lead.

The chief point to observe is that the damp-proof course covers the whole of the wall, and in the case of slates that they are of a stout quality and correctly laid to break joint and properly bedded above, below, and between each with cement-mortar gauged one of Portland cement to one of clean sand. For appearance' sake, and to prevent a lodgment for rain, moss, etc., the slates are generally kept back ½ in. on the outside of the wall and the damp-proof course pointed up in cement with a flush joint. Too much care cannot be taken to ensure that whole slates are used (and new ones at that), as, unless this is so, a straight joint occurs; then if the cement-mortar cracks when set at this point, water can ascend in the wall by capillary attraction.

It would appear to be a simple matter to lay a damp course of slates in cement, but it is a matter wherein an error in method can be made, and, as usual, it is one of those small errors impossible of remedying when once covered up. The cement compo bed should be spread over the wall to be covered, preferably by the labourer with the back of his shovel, or, failing that, by the bricklayer with his trowel, and at this point the bricklayer should commence the laying of the slates; but it is no uncommon practice for him to first of all cut the bed of compo across and raise it, as it were, into a series of small ruts or ridges, and on these to put the slates, tapping them home with the edge or the handle of his trowel. These ridges remain and set as such, and so the slates only have bearings at certain portions of their surface and invariably crack or snap at these points. This appears as a small error, but when measured by its evil results becomes one of great magnitude.

Sheet lead as a damp-proof course is the most expensive, as the lead should not be less than 5 lb. per foot super. in weight. The bed on which it is laid must be smooth, to prevent the roughness of the bricks or stones cutting through it, but at the same time its substance allows it to adapt itself to small irregularities of the surface on which it is laid. One disadvantage of this material as a damp-proof course is that under heavy loads it may squeeze out, and where this occurs the stones may spall off at the edges, for which reason the use of sheet lead between the beds of stones forming a column or pillar is now rarely used.

The cost of laying this damp course is certainly cheap, as it can be cut to the exact width required, and the putting of it into position is a simple matter. Its great advantage, however, is as a damp course to be inserted into a wall built without one, where it can be rolled up and unrolled as required as in Fig. 1; but generally where such damp courses have to be inserted the cost of cutting out the brickwork is so high that in many instances the total cost is reduced by using a bituminous sheeting which can be similarly operated.

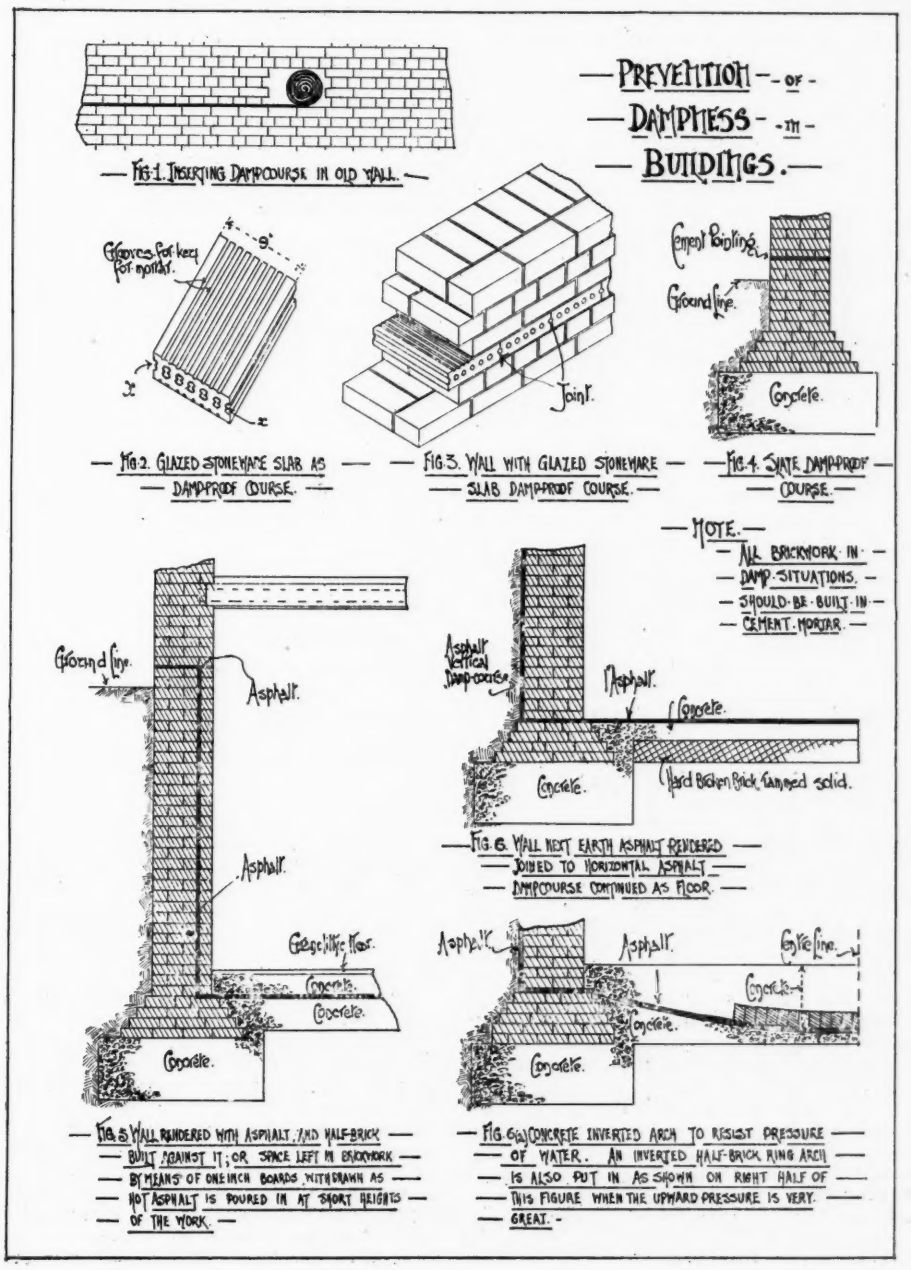
The use of a course of Staffordshire blue bricks set in Portland cement as a damp-proof course is by no means a good one, as even the best of these bricks are porous, and, this being so, dampness can rise through them. Even where the brickwork for some few courses below the damp course level are of blue Staffordshire bricks a proper damp-proof course should be inserted.

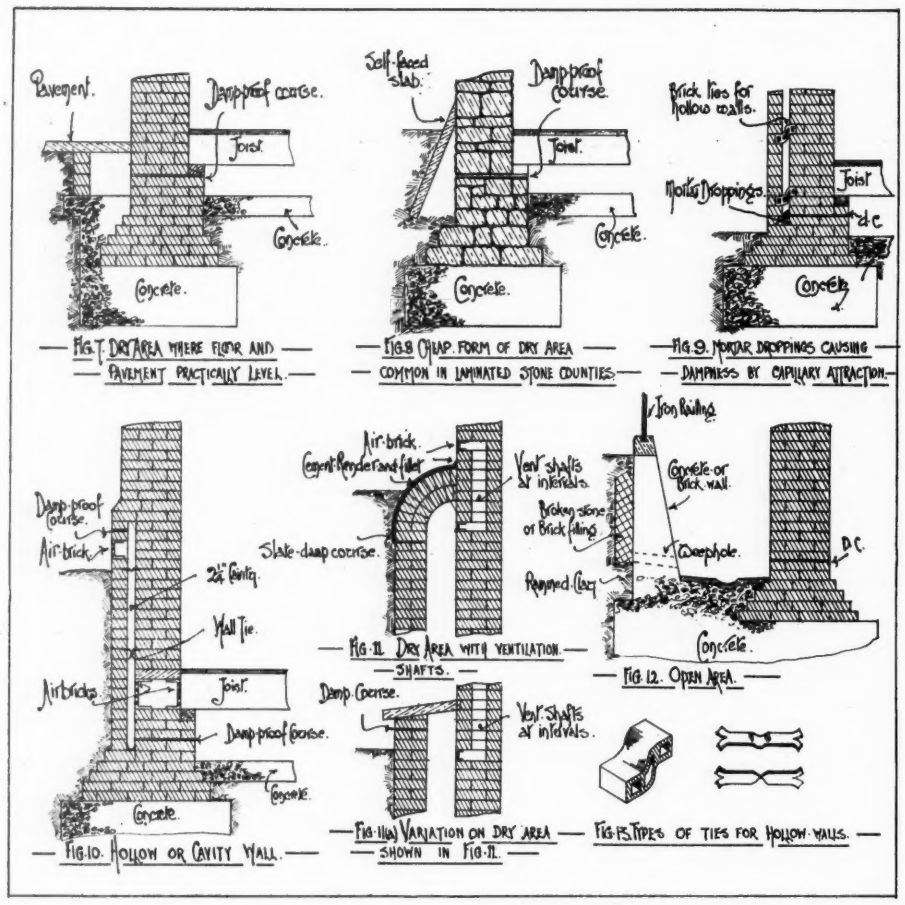
Glazed stoneware tiles or slabs, made to the width of the wall, form a good damp-proof course. They may be anything from 1 in. to 3 in. thick, and are 9 in. long. Best stoneware of itself is practically non-absorbent, but when glazed is emphatically so. This material can also withstand heavy loads. Fig. 2 shows this type of damp-proof article, and Fig. 3 a part of a damp course formed of this material.

The perforations through the slabs are of great use, forming an excellent method of ventilating the underside, and particularly the corners and spaces under the wooden joists of ground floors so necessary if dry rot is to be avoided. Once more the bricklayer can spoil the efficiency of this damp-proof course in the jointing of the blocks or slabs. The groove or perforation at the joint is apt to become filled with mortar when moisture from the courses of brickwork beneath the glazed slab may rise up through this mortar in these vertical joints into the brickwork above, and thus defeat the object of the glazed tile course at every 9 in. of its length. This defect is easily avoided by the architect, clerk of works, or foreman seeing that no mortar is put to this vertical joint, but that the hole or perforation is left quite clean and free from any jointing material. An attempt to overcome this difficulty on some jobs is often made by filling up the end half perforations, *x* and *x* in Fig. 2, first with cement; but the cement as used is rarely of itself damp-resisting, so that this method cannot be said to get over the difficulty. Again, the cement joint may crack, when moisture can rise by capillary attraction that it is much wiser to leave the perforations unfilled. There are now on the market several substances—powders or pastes—with which it is claimed to make Portland cement waterproof, some being mixed with the water, others with the cement. Where these claims are substantiated and such material is used in the jointing of these slabs the filling up of the vertical joints would not be objectionable, but the writer prefers the end perforations unfilled even then.

Asphalt as a damp-proof course is perhaps the best of all materials used for that purpose (excluding sheet lead on account of its greater cost). It is easily laid, is elastic to a certain extent, and yet able to withstand great pressure. There is also an entire absence of joints, and this is a particularly good advantage, as the joints in all other damp-proof courses are their weak points. At the same time care should be taken to see that the asphalt is from a reputable firm, as some are much too brittle, while others squeeze under a comparatively small load, nor yet can some withstand the heat as the better material can, and others are merely a mixture of coal-tar, pitch, and sand.

Before any asphalt is laid the brickwork should be levelled, and it must also be dry and brushed clean, leaving the joints well flushed up with mortar. The course of brickwork to receive the asphalt damp-proof course should be laid with the frog downwards; in all other


PREVENTION OF DAMPNESS IN BUILDINGS.
FIG 1. INSERTING DAMPCOURSE IN OLD WALL.
Grooves for key for mortar.
9"
x
FIG 2. GLAZED STONEWARE SLAB AS DAMP-PROOF COURSE.
Joint
FIG 3. WALL WITH GLAZED STONEWARE SLAB DAMP-PROOF COURSE.
Cement Pointing
Ground line.
Concrete.
FIG 4. SLATE DAMP-PROOF COURSE.
NOTE.
ALL BRICKWORK IN DAMP SITUATIONS SHOULD BE BUILT IN CEMENT MORTAR.
Ground line.
Asphalt
Asphalt
Asphalt
Concrete
Concrete
Concrete
FIG 5. WALL RENDERED WITH ASPHALT AND HALF-BRICK BUILT AGAINST IT; OR SPACE LEFT IN BRICKWORK BY MEANS OF ONE INCH BOARDS WITHDRAWN AS HOT ASPHALT IS POURED IN AT SHORT HEIGHTS OF THE WORK.
Asphalt Vertical Damp-course
Asphalt
Concrete
Concrete
Hard Broken Brick rammed solid.
FIG 6. WALL NEXT EARTH ASPHALT RENDERED JOINED TO HORIZONTAL ASPHALT DAMP-COURSE CONTINUED AS FLOOR.
Asphalt
Asphalt
Cyma line.
Concrete
Concrete
Concrete
FIG 6a. CONCRETE INVERTED ARCH TO RESIST PRESSURE OF WATER. AN INVERTED HALF-BRICK RING ARCH IS ALSO PUT IN AS SHOWN ON RIGHT HALF OF THIS FIGURE WHEN THE UPWARD PRESSURE IS VERY GREAT.



positions it is generally laid uppermost to ensure it being filled up. The asphalt course should be of an even thickness, ½ in. or ¾ in., as may be specified, and to ensure this correct thickness screeds must be fixed to the top edges of the length of the walls when the molten asphalt is poured on and surfaced with wooden floats.

In order to make quite sure of the perfectness of the jointing necessary, say, from the leaving off of one day to the commencing on the following one, the last foot or 18 in. of the overnight work should be left but ¼ in. thick, allowing the next morning's work to complete the thickness, ensuring a waterproof joint.

It is preferable, to obtain best work, to employ the specialist firms to lay the asphalt, but the blocks are obtainable from the various companies, and builders having suitable plant and tools can, of course, do this work themselves.

Bituminous sheeting from certain makers forms an excellent damp-proof course, being easily laid, for which reason, together with it being made up in wall widths and in rolls, it is admirable for use as a damp course when one has to be inserted into the walls. It is necessary to lap the joints, and in order to ensure a continuous non-jointed course the two parts forming the lap can be heated, thus forming a secure and perfect waterproof joint.

Asphalted felts are used as damp-proof courses, but care must be taken to see that that employed has a real claim to be so used. Some simple tests to judge the quality and usefulness of some of the felts on the market are as follows:—(*a*) To fold up the corners in such a manner as to form a tray, and if such tray will retain water for twenty-one days, leaving the underside of the felt perfectly dry, the sample may be considered good enough for its purpose; (*b*) pull the sample to pieces to see that each and every fibre is thoroughly coated with asphalt or bitumen. This last is important, as, in the position in which it is to be used, its edges would harbour insects, fungus, etc., if the felt was not saturated with bitumen to prevent it rotting. This liability to rot is one of the great disadvantages of felts as damp-proof courses, and, as such, some of the makes on the market hardly come within the meaning of the model by-laws of the Local Government Board, "or other durable material impervious to moisture," for which reason asphalted felts are not permissible in some towns as a damp-proof course material. Some of the best makes of asphalted felts are guaranteed by the makers as being both "durable" and "impervious to moisture."

The second heading mentioned as a cause of dampness in buildings is that of dampness rising from the ground.

To overcome this cause of dampness the model by-laws provide for a layer of good cement concrete rammed solid, at least 6 in. thick, to be put over the site to seal the ground air.

The number of voids in soils, as also their power of holding water, varies; but it may be said that all contain in smaller or larger quantities certain volumes of "ground air" at the surface and "ground water" below. As the later rises or falls, according to the heaviness of the rainfall, so the "ground air" in the pores, so to speak, of the soil rise and fall, being on occasions expelled from the ground; also this ground air is drawn from the soil beneath a house on account of the greater warmth of the rooms over the site; also a rising temperature or a falling atmospheric pressure may extract or draw out such ground air.

Ground air is always impure, often resulting from the decomposition or decaying of vegetable or organic matter, or from soakages from defective drains, cesspools, etc., hence the great need of the asphalting or concreting over the site, as required by the model by-laws.

The concrete used for this purpose must be "good," but it is certain that a large proportion of the concrete put over sites is mere rubbish, often being merely placed on top of the ground, the turf not even being removed. The by-law does not ask for the concrete to be floated to a smooth surface on top; it is to be regretted that it does not, as it would the better ensure, at any rate, the top half of the 6 in. of concrete acting effectively, as some of the concrete put down by speculating builders is deplorable.

It is possible that in basement floors the floor may be below the standing level of water, when, in addition to preventing the water entering the side walls, it may be desirable to make the basement practically a water-tight tank; and in cases where great pressure of water is found it may even be necessary to reinforce the concrete over the site in order to prevent it being lifted by the upward pressure of the water. Several methods of making basements water-tight are shown in Figs. 5, 6, and 6 (*a*).

In these same figures are shown methods of sealing the basement side walls against dampness coming in through them by reason of the damp earth next them, which was mentioned as the third cause of dampness in buildings. Some such provision is always necessary when the lowest story of any building is below the level of the surface of the ground. In the words of the model by-laws, "that where any part of a floor of the lowest story of such (new building) shall be intended to be below the level of the surface of the ground immediately adjoining the exterior of such story, and so that the ground shall be in contact with the exterior of such wall, he shall cause such story to be enclosed with double walls, having an intervening cavity between such walls of a width of 2½ in., and extending from the base of such walls to a height of 6 in. above the surface of the ground immediately adjoining the exterior of such story."

Several forms of cavity walls and dry areas are shown in Figs. 7 to 11 (*a*).

Care must be taken to observe that mortar fallen into the cavity between the two thicknesses of brickwork does not defeat the object of the hollow ways by allowing moisture to be drawn across it and up the interior wall by capillary attraction, as shown in Fig. 9.

Rain soaking in through porous parapet walls and copings is mentioned as the fourth cause of dampness in buildings. Parapet walls are generally built of facing bricks—at any rate, on one side—and this class of brick is more frequently porous than that used for the general brickwork, so consequently it behoves the architect to find some means of preventing water penetrating downwards through the brickwork forming the parapet. One means frequently adopted is to put a tile creasing course with narrow cement fillets on either side; but tiles are in themselves porous, that these means are inefficient, as even when the brick-on-edge coping and tile creasing are in cement-mortar it is frequently found that the parapet walls are sodden after heavy rains. The better method would appear to be to build the *whole* of the parapet wall in cement-mortar, and, even better still, to insert one of the damp-proof courses already mentioned. Even when stone copings replace brick-on-edge and tile creasing the same need for keeping water out obtains, the stone being porous. Where it is possible it is much preferable for the slates to go over the gable ends of walls and form verges rather than have parapet walls to them.

The fifth cause is driving rains. This is a very common cause of dampness in buildings, particularly where they are in exposed positions. Where this condition is known to occur the architect may meet it by building with hollow walls or by tile hanging them. Where the need of prevention of dampness from this cause has been overlooked resort has to be made to covering the walls with slates or tiles afterwards.

Other endeavours that have been tried are applying hot boiled oil to the brick walls with a large paint or similar brush. Dry weather should be chosen for this coating or coatings, and preferably a sunny day, when the walls will have been warmed by the sun.

Hot tar and melted pitch has been employed for the same purpose, in the same manner, and often to improve the appearance of the wall crushed shells or clean sand is thrown on to the tarred surface before it has set hard.

Another method that has been tried is to give the brickwork a coat of soft soap, followed by a coat of alum. There are also fluids specially made for the purpose, and the "Fluate" of the Bath and Portland Stone Firms Company is often used—all with the same idea of filling the pores or voids in the bricks and so stopping their porosity.

Lack of proper maintenance forms the sixth cause of dampness in buildings. This, although a cause which should never obtain is, unhappily, the most common of all. The ways in which slates or tiles get cracked or broken are countless, but they rarely, if ever, get damaged without someone being present at the time, who could report it, and so prevent delay in repair, which delay will do the injury. Workmen repairing or renewing glass in skylights, cleaning out gutters, telephone linesmen, are all responsible for such breakages, and it would therefore appear to be necessary for the occupier, owner, or other responsible person to make an inspection of roofs, etc., after each visit of workmen to them; but more often than not the inspection is not made, and the need of repairs is unknown until stains or patches appear in ceilings.

It is not, however, only by cracked or broken slates that rain water is let into the most vulnerable part of a building—the roof; it is sometimes caused by an absence of proper lap in the slating in the first place. The insufficiency of lap may not be all over the surface of the roof, and even if it is it may not be necessary to strip the lot, but rather, as a trial, it would be best to strip a patch about 4 ft. super. around where the water is penetrating and to give an extra lap to the tiles or slates if

necessary and able to do so, or pieces of zinc can be inserted between the slates, pushed up as far as the nails will allow, but not showing below the edge of the slate.

Slaters may vary the lap, and they frequently do do so. Starting with the specified lap at the bottom, they gain the confidence of the clerk of works at the outset, and he is perhaps thereby induced not to pay the strictest attention to the slating work, and is consequently "diddled" by loss of lap higher up the roof. However, the fault is not as bad as it could be, as if there is to be any change in the lap it is more necessary to have a larger one at the bottom than at the top of the roof, as the greatest volume of water collects at the former end.

Another cause of water finding its way through a slated roof is that the undereaves course is often too narrow, leaving a space instead of giving a lap, and as this is the lowest end of the roof, where the water collects in larger quantities, and where, consequently, the best lap is needed rain soon finds its way through, but instead of plastered ceilings indicating the leakage the water soaks into the brickwork, and appears soon after in stains on the paper of the walls of the room.

Often roofs become leaky by reason of the timbers of the roof settling, or by insufficiency of strength to support the roof covering and workmen at times of repair or the additional weight of snow at other times. In such cases the roof should be strengthened by strutting or firring it up.

The use of narrow strips of slate held, often, in position by one nail (two being impossible in the width) instead of using slate and a half or double slates is a cause of leaks in roofs, the small strips frequently getting displaced.

The careless or wilful holing of leadwork in hips and valleys may lead to drops of water entering the roof, as also the use of slates holed incorrectly and reversed end for end.

On zinc or lead flats rain often drives or is drawn by capillary attraction over badly-constructed rolls. The cloak of the lead-covering of a roll should always be on the opposite side to that of the prevailing winds or rains. How to search for cracks in zinc and lead is explained later on in the remarks on gutters. If flats are liable to be much walked on battens should be placed on them after the manner of snow gratings, so as to keep workmen's nailed boots off the metal, and the same precaution should be adopted in slated roofs by providing cat or duck-ladders for access to the various parts of the roofs. The presence of cats on a zinc roof is also a cause of rain penetrating—in time.

Cement fillets on roofs fracture or leave the roof, from settlement of roof timbers, by vibrations, and from movements caused by variations in temperature, and this means of keeping water out should not be adopted, but rather proper flashing should be employed, and even with flashings it should be seen that the soaker is prevented from slipping down by having an inch lip to hook on to the slate. It will generally be found that the cement fillet, when it fails, is left fixed to the brick wall and has left the slates, as the former, being rougher on the surface, affords better holding for it.

Other causes of dampness under this heading are leaky or choked-up gutters. Both defects are heralded by falling or running water, and there is no excuse for gutters remaining in their bad condition long enough to cause real dampness to the walls. Where, however, the gutters are hidden from view, as on top of a wide projecting cornice, periodical inspection becomes necessary, or if dampness is noticed gutters should be immediately overhauled. In searching lead gutters for defects, it is necessary to wipe the inside surface dry to find the crack, which will generally be noticed by water oozing from it. Cracks or holes in zinc gutters are denoted by dark lines or spots.

Choked up or cracked rain-water pipes at once betray their condition. They should be immediately cleared or renewed.

Creepers on walls not infrequently pull out the mortar from the joints of the brickwork, leaving ledges that hold rain and which in bad weather soon make a wall very damp, so that lack of pointing may also be said to be a cause of dampness.

In winter weather burst pipes add a cause of dampness in buildings. This can be obviated by due precautions, such as (1) covering exposed pipes with hair felt; (2) keeping pipes and cisterns empty at night, by the provision of properly placed taps to empty them; (3) keeping the house sufficiently warm; (4) by running the services away from external walls when installing them.

Other items in a building requiring periodical inspection to avoid dampness entering are skylights, the timbers and putty of which rot with time unless properly coated with paint at regular intervals; and, lastly, it is necessary to keep all drains in good and clean working order.

GEO. METSON,
Lic.R.I.B.A., etc.

ECONOMY IN ROOF DESIGN.

By FRANK H. JEFFREE, A.M.Inst.C.E., Wh.Ex.

THE problem of roofing a space 90 ft. square, closed in on three sides but entirely open on the other, and with no internal columns, which lately engaged the author's attention, involves several points of interest, and well illustrates the methods by which economy may be attained in structural design.

In the scheme adopted the roof covering was carried on 1¼-in. boarding, which was supported on timber rafters at about 5½-ft. centres. Below this the steel structure consisted of trussed steel purlins and steel main trusses of 90-ft. span. The general arrangement is shown in Figs. 1 and 2.

In a previous article* the author has pointed out that in the majority of cases, under a specification which calls for jointing over supports, timber in boarding, rafters, etc., must be considered as a series of independent spans, any allowance for continuity being delusive and unwarranted. This consideration determined the span which could be allowed for the boarding, but in the rafters and purlins an attempt was made to obtain the greatest possible benefit from continuity by definitely specifying the exact position of all joints and the manner in which they were to be made.

In general, where a uniform beam is continuous over several supports the bending moment at the centre of a span will be $\frac{wS^2}{24}$, while over a support it is $\frac{wS^2}{12}$, and at a distance ·212 S from the support is a point of contra-flexure without any bending moment. If joints are made at these points in purlins and rafters, a decided economy can be effected, the section being proportioned for the moment $\frac{wS^2}{12}$, instead of $\frac{wS^2}{8}$, as usual.

It is, however, by so disposing the joints that the moment over supports is exactly equal to the moment at centre that we attain maximum economy. The joint will be placed at a distance ·1465 of the span from the support, and the bending moment at centre and over support will be $\frac{wS^2}{16}$. The continuity must in no case extend over two spans, but be limited to one, with two overhanging cantilever ends, and a short independent span between cantilevers at every second bay. The stresses are then entirely determinate, and the moments for which section has to be provided are at a minimum. Fig. 3 illustrates the arrangement, the position of joints, the bending moments, etc., in the case of a short end span, an independent span, a continuous span, and a cantilever end, as was adopted for the rafters in this instance.

The rules laid down in the article quoted above, to determine the scantlings of timber purlins, are applicable to the rafters in an instance like the present, remembering, however, that the length to be taken in the formulæ there given must be the span divided by the root of two:—

$$L = \frac{S}{\sqrt{2}} \text{ or } L = \cdot 707\ S.$$

On this basis the rafters were made 7 in. by 4½ in., and were jointed as shown in the sketch, Fig. 4. This arrangement secures that the rafter shall be hinged where desired within

* "Timber in Roof Coverings." The *Builder*, October 6, 1911, p. 394.

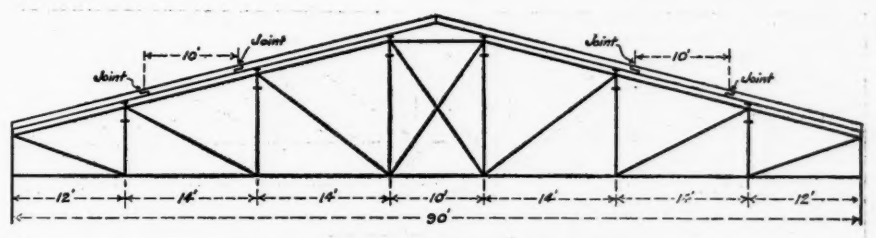


FIGURE 1. MAIN TRUSSES SHEWING RAFTERS

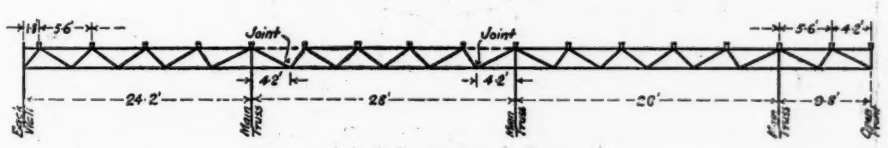


FIGURE 2. TRUSSED PURLINS

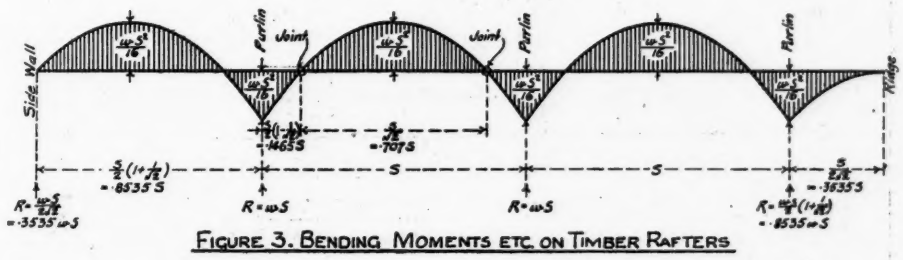


FIGURE 3. BENDING MOMENTS ETC. ON TIMBER RAFTERS

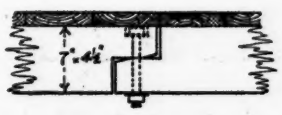


FIGURE 4.

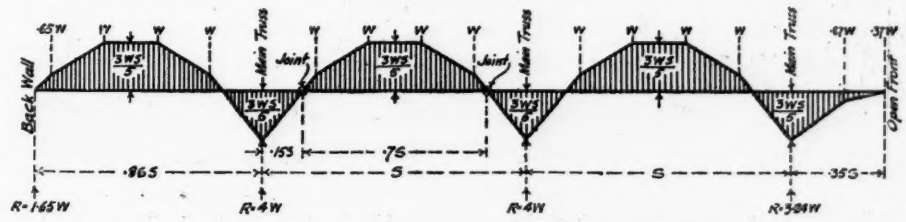


FIGURE 5. BENDING MOMENTS ETC. ON TRUSSED PURLINS

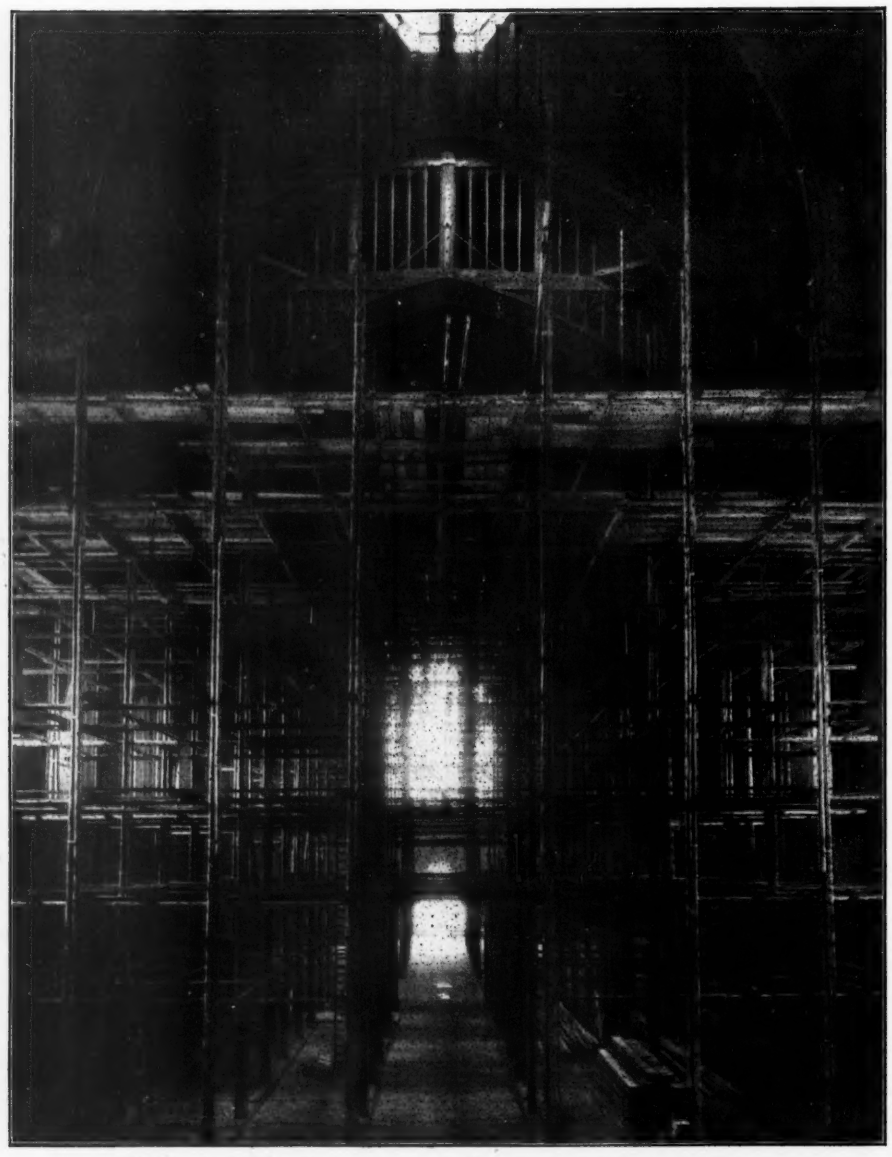
very narrow limits—an essential condition when the utmost economy is aimed at.

The arrangement adopted for the steel-trussed purlins was similar to that for the rafters—*i.e.*, the spans were so arranged as to get equal bending moments at the centre and over the supports, the section being kept constant. The precise spacing is, however, slightly different, as the loading is not uniformly distributed but concentrated at equal intervals along the length of the purlin. The arrangement, bending moments, etc., are clearly shown in Fig. 5. The top boom members shown dotted in the second bay from the right in Fig. 2, which are unnecessary from the point of view of the stress diagram, were nevertheless retained, as adding to the lateral stability of the purlin, the connection at one end being made by bolts with clearance in their holes to ensure that the purlin should be in effect discontinuous at this point.

By the adoption of the arrangement described the section of the rafters was kept small, and the trussed purlins were few in number, simple in construction, and light in section. But it is in the main trusses that the principal economies were effected. Instead of numerous slight trusses, each with many small struts and braces, which are never economical of material, we have the load concentrated on three trusses of open design. We can consequently employ heavier sections at much nearer their full working load than in the usual arrangement.

If the conditions had required that additional space should be roofed in at the sides of the main enclosure, a still further economy of material in the trusses could have been effected by carrying the roof extension on cantilever ends to the trusses, thereby reducing the bending moment at the middle of the span and putting some bending moment over the supports in exactly the same way as was done with the rafters and purlins.

It will be seen from the foregoing that only by careful consideration of the design as a whole, by graduating the spacing of the trusses, purlins, rafters, etc., to secure the minimum stress on all parts, and by clearly specifying the position and nature of the joints can maximum economy of material be secured.



Westminster Hall, showing Scaffolding for Repair of Roof.

The illustration is from a photograph of the scaffolding which has been supplied by Messrs. Stephens & Carter, Ltd., of Green-street, Paddington Green, W., at the Westminster Hall for the purposes of examining the members of the hammer-beam roof, which has been discovered to be defective. This roof has now been in its present position some 600 years.

BRITISH FIRE PREVENTION COMMITTEE TESTS.

Fire Tests with Partitions.

"RED BOOK No. 181," issued by the British Fire Prevention Committee, consists of an illustrated Report of tests recently conducted in the United States on various kinds of partitions, under the direction of Mr. Virgil D. Allen, City Inspector of Buildings, Cleveland, Ohio. The tests were initiated by the American Lathing Contractors' Association of Cleveland, and were carried out by a Committee appointed by the Building Inspector, including the following members:—Professor John H. Nelson; Mr. W. S. Lougee, architect; and Mr. L. H. Miller, of the Bethlehem Steel Company. As the Report comprises nearly eighty pages of closely-printed matter, with numerous tables and diagrams, we can only give a general indication of the principal results obtained, referring our readers to the Report itself for further details. Partitions of six types were made for the purpose of the investigation, and all of them were tested at the age of seven weeks, the temperature being raised to 1,700 deg. Fahr. during the first half-hour, and maintained at the same point for one hour and a half thereafter. Immediately after the fire test water was played on the partitions at 30-lb. pressure per square inch for two and a half minutes, the procedure followed generally being in accordance with certain specifications of the American Society for Testing Materials.

The slabs were made as briefly described in the next column.

No. 1.—Hollow partition, with 4 in. interior space; Portland cement mortar, with a small proportion of lime, applied $\frac{3}{4}$ in. thick on expanded metal lathing secured to wood studs.

No. 2.—Hollow partition, with 4 in. interior space; hard wall plaster with lime sand finish applied $1\frac{1}{8}$ in. thick on wood lathing attached to wood studs.

No. 3.—Solid partition, 2 in. thick; mortar as No. 1 applied to expanded metal lathing on channel bar studs.

No. 4.—Hollow partition, with 4 in. interior space; Portland cement mortar applied 1 in. and $\frac{3}{4}$ in. thick on expanded metal lathing with wood studding.

No. 5.—Hollow partition, with $2\frac{1}{2}$ in. interior space; mortar as No. 1 applied $1\frac{1}{8}$ in. thick on expanded metal with steel studding.

No. 6.—Hollow partition, with 4 in. interior space; plaster boards, $\frac{3}{8}$ in. thick, applied on wood studding, and finished with plaster, making up thickness to $1\frac{1}{8}$ in. on each face.

The fire resistance of the panels naturally varied to a considerable extent. Nos. 2 and 6 collapsed entirely on the application of water, but the others displayed considerable capacity for withstanding the effects of high temperatures and sudden cooling. The behaviour of the partitions is illustrated in the Report by a series of interesting photographic views as well as by more precise records.

Fire Tests of "Luxfer" Electro-Glazing.

"Red Book No. 182" deals with tests conducted in May with three window openings filled in by "Luxfer" electro-glazing, the objects of the tests being to record the effect of a fire of ninety minutes' duration, the temperature to reach 1,500 deg. Fahr., but not to exceed 1,650 deg. Fahr., followed by the application of water for two minutes on the fire side.

Opening No. 1 measured 2 ft. $4\frac{1}{2}$ in. by 4 ft. 6 in., and in it was fitted a steel frame for the glazing, divided into two equal parts by a double T-bar transom, so as to make the sight size of the lights 2 ft. square. The glazing was in 4-in. squares of clear plate-glass $\frac{3}{8}$ in. thick.

Opening No. 2 measured 2 ft. by 4 ft. 9 in., and was divided into two lights, each 2 ft. square, separated by a concrete lintel. The glazing, similar to that in Opening No. 1, was bedded in place by a wide-splayed cement fillet.

Opening No. 3 measured 2 ft. $4\frac{1}{2}$ in. by 4 ft. 6 in., and in it was built a steel frame divided into two lights, one 2 ft. by 3 ft. and the other 2 ft. by 1 ft., both glazed as in the case of the other lights.

A few minutes after the gas had been lighted the glazing in all the openings was cracked in various directions, but it should be noted that the glass was held firmly in position by the metal framing around each pane, and that no bulging was observed in any of the lights at the conclusion of the fire test.

Water was applied on the fire side of the glazing at a pressure of about 50 lb. per square inch, and caused the squares to crack and splinter. After the application of the water the lower light of No. 2 opening was bulged outwards to the extent of $\frac{3}{8}$ in., and the lower light of No. 3 opening was similarly bulged to the extent of $\frac{3}{4}$ in.

Neither fire nor water passed through the glazing of any one of the three openings, all of which were, in consequence, accorded classification as capable of affording partial protection (Class A) against fire.

The tests described are obviously of severe character, and such as would speedily destroy lights glazed in accordance with ordinary methods. The results, therefore, demonstrate clearly the value of the "Luxfer" electro-glazing and its capacity for stopping the spread of a fire of considerable severity.

Future Tests.

The winter session of the British Fire Prevention Committee will commence on October 15, when a large reinforced-concrete floor and also some materials intended for fire-resisting partitions will be subjected to high temperature fire tests at the Committee's Regent's Park Testing Station. The reinforced-concrete floor under test will measure 15 ft. by 22 ft., and will be loaded $2\frac{1}{2}$ cwt. per foot super., and subjected to a four-hour fire test, followed by the application of water. The earlier reports deal with the Committee's tests with chemical fire extinguishers, one hundred of such appliances having been investigated. A summarised Report in tabular form on some sixteen fire-resisting partitions that have been under test is also in course of preparation and will be issued early next year.

THE BUILDING TRADE.

TRADE UNIONISM AND CO-PARTNERSHIP.

THE subject of co-partnership and trade unions was debated by the British Association recently, and the Chairman of the South Metropolitan Gas Company read an interesting paper in which he endeavoured to show that co-partnership was by no means incompatible with trade unionism.

It is well known that the late Chairman took a great interest in developing this scheme of co-partnership, and that this company affords an exceptionally favourable example of its working.

The recent Report on "Profit Sharing," issued by the Board of Trade, showed that the system was declining rather than growing in popularity, and that out of 299 schemes known to have been in existence, but 133 survived in August, 1912. In the building trade out of twelve such schemes only three remain. In past times, however, co-partnership schemes have often been combined with the idea of benefit societies, as sickness, accident, and pension funds have been raised out of the funds, and it is possible that modern legislation has to some extent contributed to their lack of success, since National Insurance, Workmen's Compensation, and Old Age Pensions have made private thrift in the accumulation of such funds less necessary and less attractive.

If this be the case it would not prove co-partnership at all impracticable, but would only point to the necessity of remodelling existing schemes, but it is to be feared that, attractive as is the principle of co-partnership, in that it gives the operative a direct interest in his work outside the mere wages he earns and encourages industry and fidelity, yet the panacea for labour troubles in general is not to be found in this system.

In the first place, for such schemes to apply continuity of employment is an essential, but this is only to be found in certain industries. In many trades, as, for instance, in the building trade, where the seasons affect employment and where casual labour is to a certain extent employed, it is increasingly difficult to apply principles of co-partnership. Partnership implies permanence.

Then there is the question of the trade unions, and, although in the papers read by Mr. Charles Carpenter and Mr. John B. C. Kershaw at the British Association meeting at Birmingham it was endeavoured to be shown that trade unionism and co-partnership were not incompatible, we cannot but think Professor Ashby proved that modern trade unionism and co-partnership are irreconcilable. He pointed out that "The principle of co-partnership was the principle of the solidarity of the workmen of a particular concern with their employer. The principle of trade unionism was the solidarity of all the workmen of the whole industry in all the concerns carrying on that industry, not necessarily against the employer, but, at any rate, in face of the employer. Therefore, a policy that sought to detach the workmen of a particular concern from the common interests of all the workmen of the industry must necessarily be opposed by trade unionism."

This statement, if anything, fails in not being expressed in wide enough terms. Modern trade unionism aims not only at the solidarity of the particular industry, but at the solidarity of all labour, and the development of this is the "sympathetic strike." The relations of employer and employed in any particular trade cease to be the only element to be considered in face of the general strike. Contentment in any industry, it is true, may render it more difficult for a successful call to arms to be made in aid of other industries, but experience in other countries has shown the sacrifices which organised labour is prepared to make in the common interest.

Trade unionists will have seriously to consider their position in the near future. Trade unionism can only succeed so long as it appeals to the rank and file. The avowed objects of trade unions are to secure better terms of employment for their members and to facilitate collective bargaining.

The general strike, or the "sympathetic strike," as we have shown, may tend to discourage closer relationship between employers and employed, and thus in the long run must prove deleterious to the interests of both.

Then, as regards collective bargaining with the larger organisation and the wider sphere of operations, the leaders are finding it increasingly difficult to arrange terms of peace and to exercise authority over the numerous classes involved. Too often in recent years the terms arranged by strike leaders have been repudiated by those they have been supposed to represent, and, in consequence, a practice is springing up of referring terms of settlement to a ballot, with the result that overtures are discouraged and a resumption of work is delayed even if a settlement is reached at all without outside intervention.

The organisation for arranging strikes is more perfect than the organisation for arranging a settlement.

Professor Ashby indignantly condemned the statement that the "career, popularity, power, income, and future of labour leaders were bound up with fermenting strife," and no doubt any such sweeping generalisation is wholly inaccurate; but those labour leaders who have the interest of the working classes at heart and who desire to secure the future of the trade unions will be well advised if they turn their attention to the points we have indicated, viz., the injurious influences of the "sympathetic strike" and the necessity for better organisation in arranging settlements. The leaders who arrange terms must be given absolute powers to secure their acceptance and enforcement.

The loyalty amongst trade unionists which makes them obey a call to arms has yet to be displayed in recognising terms of settlement. Legal proceedings to enforce terms of settlement, monetary guarantees, compulsory arbitration were all condemned in the recent Report of the Industrial Council on "Industrial Agreements"; but the unions themselves, if once they recognise the importance of collective bargaining, have abundant powers to enforce obedience, and can, if the whole body is loyal, penalise recalcitrant members.

LONDON PAINTERS' STRIKE.

MR. BENJAMIN FRANCIS-WILLIAMS, K.C., who was arbitrator in the recent dispute between the London painters and the masters, has issued his award. The principal features are:—

Working hours in the summer to be fifty for thirty-five weeks, and forty-four hours for seventeen weeks of winter. Rate of wages to be 9½d. to 10d. per hour, this representing a penny advance in each case. Overtime until 8 p.m. to be paid at time and a quarter; from 8 p.m. to 10 p.m., time and a half; after 10 p.m., double time. From twelve noon on Saturdays, until four o'clock, time and a half; after four, double time. Sundays and Christmas Day double time. Men in night gangs to be paid 2d. per hour over ordinary day rates, shifts not to exceed nine hours without overtime rate. From Saturday midnight to Sunday midnight, double time. Provision for country expenses to be at the rate of 6s. 6d. per week. Time worked to be two hours in excess of London time. The London district to be 12 miles radius from Charing Cross. The rules may be terminated or altered after six months' notice on either side.

LABOUR IN THE COLONIES.

IN the October circular of the Emigrants' Information Office various particulars are given for those who are contemplating emigration to our colonies, and it is interesting to note the remarks with reference to branches of the building trades in various districts. It is stated that in Canada there is no demand for mechanics, and many of those employed in the building trade are unable to obtain work. In New South Wales the conditions have only been a trifle better. Work in Victoria is fair, and the supply of men in the building and engineering trades is sufficient. Most trades are slack in South Australia, but in Western Australia competent mechanics can generally get work. In New Zealand and Tasmania there is little or no demand for mechanics. Coming to South Africa it is stated that in Johannesburg many painters, bricklayers, masons, and plasterers are idle, although engineers are well employed. There is a demand for a few skilled carpenters at the Cape, while some employment can be found at Durban for first-class carpenters, painters, polishers, and cabinet-makers.

PROPOSED NEW BUILDINGS AND OTHER WORKS.*

IN these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works, at the time of publication, have been actually commenced. Abbreviations:—T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; L.G.B. for Local Government Board; B.G. for Board of Guardians; L.C.C. for London County Council; B.C. for Borough Council; and P.C. for Parish Council.

ABERTILLERY.—The Sites Committee of the E.C. recommend that a new infants' school to accommodate 250 children should be built at Llanhilleth.

Alnwick.—The L.G.B. have held an inquiry with regard to the application of the Alnwick R.D.C. for sanction to borrow £243, £585, and £452, for works of water supply for the townships of Hauxley, Togston, and Warkworth respectively.

Barry.—The Hospital Committee have decided to purchase 1¼ acres of land for the extension of the Infectious Diseases Hospital.

Beaconsfield.—Plans passed by U.D.C.:—Garage, etc., London-end, for Mr. King; garage, Ledborough-lane, for Messrs G. & F. Bagley; garage, Burke's-road, for Mr. W. E. Vare.

Bexhill.—Mr J. Greed is developing a scheme for the erection of twenty-three cottages, designed by Mr. G. E. Maynard, 1, Collington-avenue.

Birkenhead.—Infectious hospital at Thingwell by T.C (£7,915).

Birmingham.—The Road Board have made a grant to the Corporation of £20,000 towards the cost of the construction of so much of the ring road as is comprised in the Harborne and Quinton and East Birmingham town-planning areas

Bispham.—Two houses in Alexander-road for Mr. N. Pilling.

Blackpool.—Plans passed:—Mr. G Morris, one house, Broughton-avenue; Mr. J. Midgley, six houses, Broughton-avenue; Mr. E. Mazurk, nine houses, Layton-lane; Mr. R. G. Bateson, two houses, St. George's-avenue; Mr. J. Seed, four houses, Drummond-avenue; Messrs. Lightbowne & Dent, fourteen houses, Lightbowne-avenue; Mr. F. Ayre, two houses, Hampton-road; Mr. Wm. Bailey, four houses, Manor-road; Mrs. E. J. Keighley, two villas, Manor-road; Mr. A. Riding, six houses, Gainsboro'-road; Mr. J. Gregson, two houses, Gainsboro'-road; Mrs. A. Catterall, three houses, Abbey-road; Mr. Edmund Lumb, two houses, Gainsboro'-road; Mr. H. Hodgson, two houses, Gainsboro'-road; Mr. Robert Fenton, two houses, Caunce-street and Fenton-road; Mr. P. Kirkham, three houses, Catshaw-street; Mr. Thos. Singleton, six houses, Longton-road; Mr. R. B. Mather, six houses, Lincoln-road; Mr. F. J. Ash, five lock-up shops and restaurant, Promenade and Withnell-road; Executors of Mr. J. G. Pye, ten houses, Rose-avenue; Mr. Gilbert Hodgson, five houses, Seafield-road; Mr. R. B. Mather, six houses, Mather-street; Mr. C. Pollard, alterations to premises, Bolton-street; Mr. F. Ayre, additions to premises, Hampton-road; Argenta Meat Company, new shop front, Caunce-street; Messrs. G. & G. Hodgson, greenhouse, Leckhampton-road and Finchley-road; Mr. O. Ashworth, six houses, Ryburn-avenue.

Bolton.—Plans passed:—The Mill Hill Spinning Company, for dust flue in Mule-street; Mr. Bramhall, for twenty dwelling-houses in Lingholme-avenue; Mr. Thos. E. Smith, for picture theatre in Fletcher-street; Messrs. J. & W. Ward, Ltd., for new spinning-rooms in Turton-street; the Bolton Co-operative Society, Ltd., for improved buildings line and dairy in Kay-street; Messrs. W. Edwards & Son, for shed in Davies-street; the Musgrave Spinning Company, for engine-house off Mornington-road; Messrs. Slater & Co., Ltd., for additions to bleach works in Slater's-lane; Mr. G. G. Wright, for proposed street off Deane-road; Bolton Weaving Company, Ltd., for weaving shed off Deane-road; Mr. W. E. Yates, houses in Thornsroad; Mr. J. Leach, shop additions at 440, Blackburn-road, Astley Bridge; Messrs. Leigh Bros., Ltd., house and shop in Ainsworth-lane; Messrs. T. Hardcastle & Sons, Ltd., for making-up rooms at Firwood Bleachworks; Mr. F. R. Freeman, for mission-hall in

* See also our list of Competitions, Contracts, etc., on page 382.

RATES OF WAGES IN THE BUILDING TRADE.

THE following are the present rates of wages in the Building Trade in the principal towns of England and Wales. It must be understood that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur:—

——	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Masons' Labourers.	Bricklayers' Labourers.	Plasterers' Labourers.
	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
Newcastle	10	10	10	10	9½	10	9	6¾	6¾	6¾
Sunderland	9½	10	9½	9½	9½	9	9	6½	6½	6½
Darlington	9	9½	9	9½	9½	8½	7½	6½	6½	6½
Stockton-on-Tees	9	10	9½	10	9½	9	8½	7	7	7½
Bradford	9½	9½	9	9	9½	9	8½	6½	6½	6½
Halifax	9	9	8½	8½	8½	8½	8½	6½	6½	6½
Hull	9½	9½	9½	9½	9½	9½	8½	7	7	7
Leeds	10	10	9½	9½	9	9½	8	7	7	7
Sheffield	10	9½	9½	9½	9½	9½	8	6½	6½	6½
York	9	9½	8½	9½	9½	8½	7½	6½	6½	6½
London	11½	11	11½	11½	—	11½	8½ upwards	7½	7½	7½
Brighton	8–9	8	8	—	—	—	—	—	—	—
Portsmouth	9	9	9	9	—	8	7½	6½	6½	6½
Southampton	8½	9½	9	8	—	9	8	6½	6½	6½
Maidstone	8½	8½	8½	—	—	8½	7½	5½	5½	5½
Bristol	9½	9½	9½	9½	—	9½	9	6½	6½	6½
Plymouth	8½	8½	8½	8½	—	8½	7½	5½	5½	5½
Bath	7½	7½	8	8	7½	7½	7	5–5½	5–5½	5–5½
Cheltenham	8½	8½	8½	8½	—	8½	7½	5½	5½	5½
Exeter	8	8	7½	7½	7½	7½	6½	5	5	5
Gloucester	7½	8½	8½	7¾	7½	8½	7½	5½	5½	5½
Hereford	7½	8	7½	8	7½	7	6½	5	5	5
Stroud	7	7	7	7	7	7	6½	4½	4½	4½
Blackburn	10	10	9½	9	9½	9½	9½	6½	7	7
Bolton	10	10½	10	10½	10	9	9	—	—	—
Liverpool	10½	10½	10½	10	10	10	9½	6–6½	6–6½	6½
Manchester	10	10½	10	10½	9	10	9½	6	6	7½
Oldham	10	10½	10	9½	8½	10	9½	6	7	7½
Preston	9½	10	9½	9	8½	9	8½	5½	6	6
Birmingham	10	10	10	10½	9	10½	9	7	7	7
Derby	9	9	9	9	9	9	8	6	6	6½
Leicester	9½	9½	9½	10½	9	9½	8	7	7	7½
Nottingham	10	9½	9½	10	9	9½	9	7	7	7½
Norwich	8	8	8	8	8	8	6½	5	5	5
Cambridge	9	8½	8½	9	8	9	7	5½	5½	5½
Oxford	8½	8	8	8½	8	8½	7	6	6	6
Southend	9	9	9	9	Piecework	9	7	6	6	6
St. Albans	9	9	9	10	8½	9	8	6	6	6
Grays	—	10	10	—	—	—	8½	7	7	7
Cardiff	9½	9½	9½	9½	9½	9½	8½	6½	6½	6½
Swansea	9	9	9	9	8½	9	8½	6	6	6
Newport	9	9	9	9	8½	8½	8½	6	6	6
Chatham	8	9	8½	9	9	8½	7	5½	5½	5½
Birkenhead	10½	10½	10½	10	10	9½	9½	6½	6½	6½

The mason's rate given is for bankers; fixers usually ½d. per hour extra.

Belvoir-street, Tonge; Mr. T. Scowcroft, for new streets off Bury-road Breightmet; Mr. J. J. Harrison, for eighteen houses in Hulton-lane; Mr. George Roscoe, for additions to Ravenhurst, Chorley New-road; and Heaton Village Club, for addition to billiard-room in Back Chorley Old-road.

Bradford.—The Health Committee have instructed the City Architect to prepare plans and estimates for an extension of the Bierley Hall Sanatorium.

Bredbury.—Mr Hollingworth, architect, has prepared plans for a picture house in Romily for Messrs. Wyman & Herman.

Bridge.—Additions to Mill House, Harbledown.

Bridlington.—The L.G.B. have held an inquiry into the application by the T.C. for sanction to borrow the following sums:—£600 for works of sewerage in North-street and in the Sewerby Sea Defence-road; £500 for the erection of a new house for the town's gardener, and a new weigh office in Quay-road; £600 for the purchase of property in Portland-place for depôt purposes; £600 for the purchase of Centre House, for the improvement of Market-place; and £4,600 for the widening and improvement of Cardigan-road. The B.G. have decided on alterations at the Workhouse (£356).

Bristol.—It is agreed that the T.C. shall join with the University authorities in acquiring the Rifle Drill-hall site for an extension of the Museum and Art Gallery. Mr. T. C. Gluyas, Bristol, has obtained the contract for the steel and general construction work and additions to and modification of the general sanitary arrangements at the headquarters of the Bristol West of England, and South Wales Operatives' Society; Mr. T. J. Moss-Flower, A.M.Inst.C.E., Carlton-chambers, Bristol, engineer.

Bromley.—The architect of the B.G. will attend the next meeting to discuss questions affecting the projected new stores and tramps' ward.

Clacton.—The Surveyor has been instructed to prepare plans for a bathing pavilion on the east cliff.

Conway.—The T.C. have decided to proceed with a scheme for working-class houses.

Cookham.—Plans approved by R.D.C.:—Mrs. E. S. Brine, bungalow, Birchets Green, Hurley; Mr. E. Wagg, alterations and additions, "The Islet," Maidenhead Court; Mr. F. I. Pitman, alterations and additions, "Brayhead," Bray; Sir Chas. S. Henry, M.P., loose boxes, "Choseley House," Hurley; Mr. E. W. Rolfe, pair of cottages, Murrin-road, Cookham; Mr. V. A. Litkie, washhouses and water-closets, Fern Cottages, Pinkneys Green, Cookham; Mr. J. Wynch, store-house, Courthouse-road, Cookham; Mrs. Rule, additions, "Capri," Lock Mead, Cookham; Sir Chas. S. Henry, M.P., three cottages, Bottle Green, Hurley.

Coventry.—Technical Institute at Pool Meadow for T.C. (£30,000). Plans passed:—Institute, house, and four lock-up shops, Coventry-street and Barras Heath, for Mr. E. O. C. Howells; two garages and six houses, Earlsdon-avenue, for Messrs. Cox & Co.; alterations to premises, West Orchard, for the Coventry Perseverance Co-operative Society, Ltd.; five houses, Terry-road, for Mr. A. Aviss; house and shop, Lockhurst-lane, for Mrs. H. Hutt; extensions to offices, Canal-road, Edgwick, for Messrs. Alfred Herbert, Ltd.; billiard-rooms, Fleet-street, for Messrs. Sherrad & Rudge; two houses, Beaconsfield-road, for Messrs. Jervis Bros.; four houses, Parkside, for Mr. H. Cousins; alterations, Craven Arms Hotel, High-street, for Messrs. Mitchells & Butlers, Ltd.; house, St. Margaret's-road, for Mr J. Gardner; two houses, Nelson-street, for Mr. R. Matthews; fifteen houses, Terry-road, for Messrs. Godfrey Bros.; brewhouse, etc., to the White Horse, East-street, for Mrs. Mason; house, Melbourne-road, for Mr. E. Evans; twelve houses, Sir Thomas White's-road, for Mr. B. S. Chinn; alterations to premises, No. 16, Hertford-street, for Mr. W. I. Iliffe; house, with shop, Churchill-avenue, for Mr. J. Whetstone; twelve houses, Latham-road, for Mr. E. Jordan; four houses, Sovereign-road, for Mr. T. D. Griffiths; two houses, Wyley-road, for Messrs. Jervis Bros.; additions to shop premises, 519 and 521, Foleshill-road, for Mr. A. Blunt; five houses, Copperfield-road, for Mr. F. Burton; six houses, Sovereign-road, for Mr. G. W. R. Philpot; two houses, Hearsall-lane, for Messrs. Patrick & Barratt; ten houses, Churchill-avenue, for Mr. E. Stidworthy; additions to house, Spencer-road, for Mr. J. W Mills; fourteen houses, Freeman-street, and one house, Awson-street, for Mr. C. A. Newbold; four houses, Harefield-road, for Mr. E. W. Burton; house and workshop Mount-street, for Mr. W. Fellows; bridge over the River Sherbourne, rear of Garfield-road, for the Rover Motor Company, Ltd.; twelve houses, St. Lawrence's-road, for the Lockhurst-lane Industrial Co-operative Society, Ltd.; six houses, and house with shop, Swan-lane, for Mr. A. Jeffs; nine houses, Mansell-street, for Mr. J. Isaac; two houses, Holbrooks-lane, for Mr. T. Dagley; timekeeper's office, Pridmore-road, for Messrs. S. Courtauld & Co., Ltd.; strong-room, etc., Smithford-street, for the National Provincial Bank; two houses, Stony-road for Mr. H. G. Storer; power-house, off Foleshill-road, for Messrs Courtauld & Co., Ltd.; five houses, Beaconsfield-road, for Messrs. Jervis Bros.; two houses, Holbrooks-lane, for Mr. E. Pearson; seven houses and stable Hastings-road, for Messrs Jervis Bros.; four houses and one house with shop, Clay-lane, for Mr. T. Dalton; two houses, Styvechale-avenue, for Mr. J. G. Gray.

Dalton.—Plans passed:—Additions to Dalton House, Dalton, for Dr. A. J. Cross, Dalton; dwelling-house in Duddon-road, Askam, for Mr. John Fleet, Millom.

Dawlish.—The L.G.B. have sanctioned the application of the U.D.C. to a loan of £2,500 for the purchase and adaptation of the Knowle Estate for purposes of public offices, fire-station, and recreation-ground.

Dewsbury.—The Surveyor has been instructed to prepare plans for the paving, etc., Back Nelson-street; and it has been decided to pave, kerb, etc., Wood-hill, Batley Carr. Plans have been approved for a house off Lees Hall-road, Thornhill Lees, for Mr. F. B. Howe; fireproof bridge between two warehouses for Messrs. W. Patterson & Sons; and addition to workshop for Messrs. Preston & Burnett, Ravensthorpe.

Dublin.—The City Architect has prepared a plan for the erection of 113 cottages, the estimated cost of the building works of which is £18,500, and the estimated cost of roads, sewers, etc., £2,000, on the Inchicore site, and application will be made to the L.G.B. for a loan.

Dunfermline.—The T.C. has decided to allow the erection of four experimental cottages by Sir Wm. Robertson, which do not strictly comply with the by-laws.

East Ham.—The E.C. have decided that plans be prepared for the erection of a school in the Doecker construction, to accommodate 500 junior mixed and infant scholars.

Elgin.—Plans passed:—Additions, etc., to house at South College-street belonging to Mr. Samuel Davidson; alterations and new shop fronts at Nos. 144, 146, and 148, High-street, for the Trustees of the late Mr. John Munro.

Faversham.—Motor-house adjoining 6, Queen's-parade, for Messrs. E. Bassant & Co.

Felixstowe.—The U.D.C. have adopted part of the scheme prepared by Mr. E. C. Frere, A.R.I.B.A., for the improvement of Hamilton Cliff, at a cost of about £3,000

Great Horwood.—House for Mr. F. Cary.

Guildford.—The T.C. have decided to erect twenty cottages in Old Farm-road, twelve to be three-bedroom cottages and eight two-bedroom cottages, and the Surveyor has been instructed to prepare the plans.

Hartley South.—The Whitley U.D.C. are seeking a further loan of £4,850 for the new cemetery. The new loan is partly for additional buildings.

Hertford.—An inquiry has been held by the L.G.B. into an application by the T.C. for permission to borrow £3,446 for works in connection with new mains for water supply purposes.

Holbeach.—The L.G.B. have sanctioned the borrowing of £3,600 by the U.D.C. in order to erect eighteen houses under Part III. of the Housing of the Working Classes Act.

Houghton.—Plans passed by R.D.C.:—Two houses for Mr G. McCall at Chester-road, Shiney row; roof couple over the gallery at Fence Houses Picture Hall; and six dwelling-houses at Sedgeletch for Mr. J Fisher.

Leicester.—The L.G.B. have held an inquiry in respect of applications by the T.C. for sanction to borrow £121,116 for sewerage and sewage-disposal works, £10,260 for the purchase of properties for street improvements, £700 for the provision of a public sanitary convenience in the Market-place, and £5,058 for the Willow and Evington Brooks improvements.

Leyton.—The U.D.C. are applying for sanction to a loan of £5,000 for a fire-station at Harrow Green.

Lincoln.—At the next meeting of the B.G. a resolution will be proposed for the erection of the new laundry and vagrant wards at the Workhouse, at an expenditure of not exceeding £2,600.

Lydd.—Alterations to bungalows at East Ripe for Mr. C. E. Bass.

Maldon.—The Surveyor has presented plans and estimates for the erection of six workmen's dwellings at Tolleshunt Major under the Housing Act. The cost would be £1,100, composed as follows:—Erection, £851 9s. 9d.; drainage, £53; water supply, £25; land, £30; fencing, £60; paths, £14; contingencies, £66. The plans have been sent to the P.C.

Maltby.—The Rotherham U.D.C. have passed plans for 120 houses in Tickhill-road for the Maltby Main Colliery Company.

Middlesbrough.—The Plans Committee have approved of plans for laying-out the remaining portion of the Linthorpe Estate on the north side of Rockcliffe-road. There were seventy-two building sites, or an average of eighteen to the acre, which is within the limits prescribed under the town-planning scheme. Plans for the erection of a new laundry and the extension of the kitchen at the North Riding Infirmary were also approved. The L.G.B. have held an inquiry into the application of the Corporation for sanction to borrow £3,575 to repave Boundary-road, Sussex-street, and South-street, and £2,640 for the erection of a divisional police-station in Dacre-street.

Oldham.—The B.G. have sanctioned the expenditure of £1,176 for the extension of offices.

Ossett.—The L.G.B. have held an inquiry into the application of the Corporation for sanction to borrow £40,000 to extend the gasworks

Penshaw.—The contract for rebuilding Penshaw Station, destroyed by fire, has been placed with Messrs. Stephen Fenwick & Co., contractors, Northumberland-road, Newcastle.

Pinner.—Plans passed by U.D.C.:—Two villas, Harrow-view, Pinner, for Mr. J. W. Bendall; alteration to shop fronts, etc., High-street, Pinner, for Messrs. Thomas Bros.; additions at Clonmore, Moss-lane, Pinner for Mr. Charles R. Mayo; house, Payne's-lane, Pinner, for Mr. A. T. Whittle; three houses, Woodman's Estate, Pinner, for Mr. A. T. Whittle; house, Waxwell-lane, Pinner, for Mr. Henry A. West; house at rear of Clonard, Oxhey-lane, Pinner, for Mr. A. C. Rackham; cottage, West End-lane, Pinner, for Mr. William Lobb; alterations to residence, The Wilderness, Northwood-road, Pinner Green, for Mr. C. F. Jackson.

Preston.—The B.G. have agreed to the erection of a nurses' home at Fulwood Workhouse, at a cost not exceeding £4,868.

Reading.—The T.C. have deferred the recommendation of the E.C. to instruct the architects to amend the drawings for the new Kendrick Schools pending the consideration of proposal for amalgamation with Reading School. Plans have been approved for additions to premises of Messrs. W. Kingham & Sons, Queen's-road, sut-

mitted by Mr. J. Kingham, architect; for additions to premises in School-road. Tilehurst, for Mr. J. Forshaw; house in Wokingham-road for Mr. McCarthy E. Fitt; two villas at The Mount, Caversham, for Mr. A. J. Allaway and Mr. A. E. Hamilton; and a store in Mill-lane for Burberrys, Ltd.

Romford.—Plans approved by R.D.C.:—For the drainage of a factory in Chequers-lane, Dagenham, for Messrs. Pritchetts & Gold; and for two houses on the north side of Woodman-road, Great Warley, for Mr. W. Dobson.

Rothamstead.—A fund of £12,000 is being raised to erect a laboratory at the Agricultural Experimental Station.

Runcorn.—The L.G.B. have held an inquiry into the application of the R.D.C. of Runcorn for sanction to borrow £2,250 for works of private street improvement for the parish of Stockton Heath.

Selby.—Messrs. Fletcher, Ltd., of Shipley, have purchased an 18-acre field, on which they propose to erect a glass-bottle works and a pickle factory.

Settle.—Plans passed for two cottages at Langcliffe for the Fine Cotton Spinners' Association; and additions to Cross House, Austwick, for the Rev. J. R. Wynne-Edwards. The L.G.B. have held an inquiry into the application of the R.D.C. for sanction to borrow £2,250 for the purpose of water supply for Langcliffe.

Sevenoaks.—Mr Kersey has been appointed architect to the U.D.C. in connection with the new baths, which are estimated to cost £5,000, and for lavatories, estimated to cost £400. Mr. Kraftmeir is bearing the cost of the baths.

Sherborne.—Alterations at Greyhound Inn for Mr. A. K. Woolmington.

Sidmouth.—Fifty-one cottages, at a cost of £11,300, are proposed to be erected by the U.D.C.

Southgate.—Plans passed by U.D.C.:—Mr. H. C. Keene, twenty-two dwelling-houses in the Grove, Palmer's Green, and a dwelling-house in the Grove. Palmer's Green; Mr. W. J. Keene, jun., seventeen dwelling-houses in the Crest, Palmer's Green; Messrs. J. Bruton & Sons, a chimney-shaft at the Enamel Works, Hedge-lane, Palmer's Green; Mr. W. J. Hampton, four motor-houses on land on the northerly side of Broomfield-lane, Palmer's Green; Mr. C. P. Young, motor-house at the rear of Kimble, Bourne-hill, Palmer's Green; Mr. W. A. Goring, two dwelling-houses in Riverway, Palmer's Green; Mr. R. P. Simmons, eleven dwelling-houses in Hazelwood-lane, and five dwelling-houses in Hamilton-crescent, Palmer's Green; Mr. W. Moss, sixteen dwelling-houses in Fox-lane, Southgate; and Mr. J. H. Thomas, M.P., an extension at the rear of No. 121, Bowes-road, Palmer's Green.

Spalding.—The R.D.C. have decided to apply for a loan of £2,583 for a water scheme for Deeping St. Nicholas; and also to purchase land at Gosberton and Pinchbeck for the erection of further cottages.

Stoke.—A new secondary school is to be provided at the northern end of the borough.

Sunderland.—Plans passed by T.C.:—Mr. G. T. Brown, for two houses in Burnville-road; Messrs. W. & T. R. Milburn, for alterations to the Palatine Hotel, and for four houses for the North-Eastern Railway Company to be erected in Association-road, Monkwearmouth. Messrs. Milburn have also presented plans on behalf of the N.E.R. for a house and shop in Association-road, and a house and shop in Hampden-road and Association-road, but they have been deferred for consideration.

Thornaby.—The Directors of the Co-operative Laundries have decided to erect another laundry at Thornaby.

Tynemouth.—The E.C. have approved of the plans of Mr. A. K. Tasker, architect, for new elementary schools at the Spring Gardens site, and they are to be forwarded to the Board of Education.

West Ham.—Plans passed for house at Edge End for Mr. W. Jones, and additions to cottage at Breams Eaves for Mr. W. Davis.

Wiveliscombe.—The U.D.C. have agreed to the plans, etc., submitted by the Council's Architect, Mr. F. W. Roberts, relating to the provision by the Council of twenty-six workmen's dwellings on the site in North-street, be approved, and that application be made to the L.G.B. for sanction to borrow the sum of £4,823 10s., the estimated cost of the erection.

Wrexham.—Plans for seventy new houses have been before the T.C.

GENERAL BUILDING NEWS.

CHURCH, CHELSEA, S.W.

St. Andrew's Church, with seating accommodation for 700, is being completed on the site of Emmanuel Church, Park-walk and Camera-square, Chelsea. The architects are Sir Arthur Blomfield & Sons, Montagu-place, Baker-street, W., and the general contractors are Messrs. Joseph Dorey & Co., Ltd., Brentford. The length of the building is 115 ft., and the width 63 ft. The height of the nave roof from floor is 57 ft., and the height of the tower 135 ft. The bricks have been supplied by Mr. S. F. Mitchell, Littleton, Guildford, and the stone by the Bath Stone Firms, Ltd. The tiles come from Messrs. G. Tucker & Son, Ltd., Loughborough, Leicestershire. The glass is by Messrs. R. E. Pearse & Co., Upper Kennington-lane, S.E., and the east window by Messrs. Clayton & Bell, Clifford-street, Bond-street, W. Messrs. Blackburn, Starling, & Co., Ltd., Berners-street, W., are installing the electric light, and the heating is in the hands of Mr. W. F. Spencer, Cross Bank Works, Oldham. The vane is supplied by Messrs. Hart, Son, Peard, & Co., Charing Cross-road.

RESTORATION OF PAISLEY ABBEY.

At a recent meeting of the Paisley Abbey Restoration Committee the tenders were accepted. The list appears in this issue on Tenders page.

BLOOMSBURY BAPTIST CHAPEL.

The present extensions to the Central Church, Shaftesbury-avenue, are estimated to cost £11,000. The architect is Mr. H. F. Murrell, A.R.I.B.A., Chancery-lane, and the general contractor is Mr. J. Carmichael, Trinity-road, Wandsworth. The steelwork is by Messrs. Redpath, Brown, & Co., Ltd., East Greenwich, and the concrete work by the Trussed Concrete Steel Company, Caxton House, Westminster. Messrs. Aldous & Campbell, Lower Bland-street, S.E., are supplying the electric lifts, Messrs. Duncan, Watson, & Co., Berners-street, are installing the electric lighting, and Messrs. Rosser & Russell, Ltd., Charing Cross, are responsible for the heating. The chief feature of the scheme is the new story, but there are other alterations to the building.

ABERDEEN UNIVERSITY.

Extensive additions have been made to the King's College building at the Aberdeen University, from the designs of Mr. A. Marshall Mackenzie, A.R.S.A., F.R.I.B.A. The new building is 160 ft. long and 40 ft. wide, and is a fireproof construction; the floors are of reinforced concrete, the lath of expanded metal, and the rafters of steel. The contractors were:—Mason, Mr. James Gauld; carpenters, Messrs. D. Macandrew & Co.; plasterers, Messrs. Roger & Baxter; plumber, Mr. Walter Simpson; slaters, Messrs. George Currie & Co.; painters, Messrs. George Donald & Sons; iron and steel works, Messrs. James Abernethy & Co.; deafening, Messrs. Archibald & Co.; electric light, the Aberdeen Electrical Engineering Company; heating, Messrs. Mackenzie & Moncur; stone carving, Messrs. H. W. Martyn, of Cheltenham.

SWANSEA TRAINING COLLEGE.

Mr. G. E. T. Lawrence, of London, is the architect for this new college, which has been erected at a cost of about £40,000. The building will provide accommodation for 200 students, and has been planned on the quadrangle principle, and the south front is three stories high and the north is one story. A library is included in the college and also an isolation ward. The contractors were Messrs. Lloyd Brothers, of Swansea.

SCHOOL BUILDING AT LEITH.

The David Kilpatrick Public School in North Junction-street, Leith, is being erected to provide accommodation for 1,635 students. The building is 130 ft. long and 102 ft. wide, and is planned on an L shape. There are twenty-four classrooms, two large halls, music-room, cloakrooms, staffrooms, entrance halls, boiler-rooms, etc. The architect for the work is Mr. G. Craig, of Leith.

SCHOOLS AT PRESTON.

The plans of Mr. F. Howarth have been selected for the new day and Sunday schools which are to be erected in Ribbleton-avenue. The estimated cost of the work is £4,000.

PARISH HALL, ST. ALBANS.

A new hall is being erected for the parish of St. Paul, St. Albans, from the designs of Mr. P. Blow, A.R.I.B.A. The building contains a main hall, small hall, classroom, club-rooms, etc. Messrs. Miskin & Sons are the builders.

STORES, AGAR-STREET, STRAND.

Extensions to the premises of the Civil Service Supply Association, Ltd., are in progress in Agar-street, Strand. Mr. G. A. Lansdown, F.R.I.B.A., Regent-street, is the architect, and the general contractors are Messrs. Patman & Fotheringham, Ltd., Park-street, Islington.

MATERNITY HOSPITAL, LOWER CLAPTON-ROAD, N.E.

The site of this building has a frontage of 250 ft. to Lower Clapton-road, and contains about 2¾ acres, with its axis, east and west. The existing buildings on the frontage line have been adapted for the purposes of officials', waiting patients', and nurses' accommodation. New buildings have been erected in the rear, comprising ward blocks for fifty beds, in separate blocks of twelve beds each, and isolation block of two beds, together with administrative and laundry blocks. A feature is the distribution of the ward buildings on the site, each of one story, with north and south axis, whereby each block has ample provision of air and sunlight, and in favourable weather beds can be wheeled into the open. The scheme has been carried through under the expert advice of Dr. Donald Mackintosh, M.B., M.V.O., of Western Infirmary, Glasgow, and the building was designed and erected under the superintendence of Mr. Alex. Gordon, architect, F.S.I., of Queen Victoria-street, E.C. The work has been carried out by Mr. Coxhead, builder, Bulwer-road, Leytonstone, and Messrs. Dolby & Williamson, consulting engineers, of Westminster.

FLATS, ETC., WIGMORE-STREET, W.

Work has just been begun on business premises, with flats over, in Wigmore-street, Cavendish-square. The architects are Messrs. Gibson, Skipwith, & Gordon, Old Bond-street, W. The general contractor is Mr. J. Carmichael, Trinity-road, Wandsworth, and the steelwork engineers are Messrs. Little & Sons, Edinburgh.

BUSINESS PREMISES, PIMLICO.

An extensive drapery store is being erected in the Vauxhall Bridge-road. The second part of the contract is now being carried out, and it includes an arcade from the main frontage to Wilton-road and Victoria Station. The architects are Messrs. Gibson, Skipwith, & Gordon, Old Bond-street, W., and the general contractor is Mr. J. Carmichael, Trinity-road, Wandsworth. The steel construction, with the fireproof flooring, is by Messrs. Little & Sons, Edinburgh, and the lifts are by Messrs. Waygood & Co., Ltd., Falmouth-road, S.E. The shop fronts are by Messrs. S. Haskins & Brothers, Ltd., Old-street, E.C., and the window casements by Messrs. Henry Hope & Sons, Berners-street, W. The carving is by Mr. H. C. Fehr, The Avenue Studios, Fulham, and the fibrous plaster ceilings, etc., are by Messrs. Gilbert Seale & Son, George-street, S.E. The electric wiring, etc., is by Messrs. A. V. Gifkins & Co., Victoria-street, S.W.; the fire hydrants are by Messrs. Merryweather & Sons, Ltd., Long Acre; and the fire sprinklers are by Messrs. Newton, Chambers, & Co., Ltd., Walbrook. Messrs. Rosser & Russell, Ltd., Charing Cross, are supplying the heating apparatus, and the cooking arrangements are being fitted by Messrs. James Slater & Co., Ltd., Wells-street, W. The wall tiling is by Messrs. Diespeker, Ltd., Holborn-viaduct, E.C., and the pavement lights are by the British Luxfer Prism Syndicate, Ltd., Hill-street, Finsbury, E.C. The sanitary fittings are by Messrs. John Bolding & Sons, Ltd., Grosvenor Works, Davies-street, W., and the sewage ejector scheme is by Messrs. Shone & Ault, Victoria-street.

HOUSE, WIMPOLE-STREET, W.

Mr. F. M. Elgood, F.R.I.B.A., is the architect for the house in course of erection at 85, Wimpole-street, W. The general contractors are Messrs. D. Prosser & Son, Charlotte-street, Fitzroy-square, W.

PUBLIC-HOUSE, DEPTFORD.

"The White Swan" public-house, Blackheath-road, Deptford, is being rebuilt for Messrs. Watney, Combe, Reid, & Co., Ltd., under the supervision of Mr. M. T. Saunders. Messrs. E. A. Roome & Co., of Urswick-road, Hackney, N.E., are the builders.

IMPROVEMENTS AT ABERDEEN.

The Sheriff Courthouse buildings at Aberdeen have undergone a process of renovation and repairs. The interior has been redecorated and a system of ventilation by motor-fans installed. The work has been carried out under the supervision of Messrs. Kelly & Nicol, architects.

NEW BUILDING IN CHEAPSIDE.

Mr. T. H. Smith was the architect for the new building which has just been completed in Cheapside. The premises are now occupied by several business firms and have been elaborately fitted up. There is an electric passenger lift, also a goods lift, while a fire-escape connects each floor and can be easily reached from the windows of all the floors. The builders were Messrs. Trollope & Sons and Colls & Sons, Ltd.

TRADE NEWS.

Under the direction of Mr. P. N. Brown, architect, Holmfirth, Boyle's latest patent "air-pump" ventilator has been applied to the Free Methodist Church, Wooldale.

The British Ceresit Waterproofing Company, Ltd., have received a letter from Messrs. Hinson & Co., builders and contractors, of Stamford, who write:—"The 'Ceresit' we purchased from you last year we have used for a railway cart-weighing machine pit. The company had considerable difficulty with the pit, being continually partly filled with water, though apparently well concreted; in fact, the pump was kept going every day. We found when we started the work several springs bubbling up from the bottom, but using 'Ceresit' as per your directions the job was successful, holding the water back, and up to now they have had no water in the pit with the exception of a little surface water from the top."

ARCHITECTURE AND THE STAGE.

A MOST interesting play, entitled "Collision," by Bridget Maclagan, is produced at the Vaudeville, the scene of which is laid in India, and which is a powerful commentary on the unwisdom, if not impossibility, of trying to put new wine into old bottles. Mr. Norman McKinnel, as Colonel Digby of the Punjaub Commission, is typical of the somewhat arrogant and unsympathetic but essential masterful type of man by whose aid the Government of India has been carried on. Miss Grace Lane takes the *rôle* of his wife, Susan Digby, and plays a difficult part with both force and charm. In Imogen Daunt Miss Alice Crawford affords a most telling and dramatic example of the damage that may arise from the contact of what is characteristically of the West with the people of the East, and shows very great power and charm in a part acted with intense vividness and force. Kasha Ram Choula, M.D., the Indian doctor educated in Europe, and played by Mr. Malcolm Cherry, expresses in the most forcible way the moral of the piece—the impassable gulf fixed between the East and West in thought and feeling. The other characters, especially Gopi Chand, C.I.D., played by Mr. Douglas Munro, help to complete a cast containing no weak members, and who give a play unusually full of dramatic incident its full value and meaning.

The action of the play takes place in the drawing-room of Colonel Digby's bungalow, the house of Rai Sahib Badri Nath, Colonel Digby's study, and a camp, which are all suitable and true presentments.

We share Imogen Daunt's dislike of the mixture of Eastern and Western ideas in the furnishing of the Hindoo's house, but it is a true picture of the way in which the East, even in matters of art and decoration, suffers by contact with the West.

At the Playhouse Miss Marie Tempest produces "Mary Goes First," by Mr. Henry Arthur Jones, in which she takes the titular *rôle* of Mrs. Whichello, a part which both makes the slightest of plays and in which she surpasses herself. The piece is a satire on the way in which politics are used to forward personal and social ambitions. In Richard Whichello, the husband forced to enter political life and abjure his personal convictions to serve his wife's ambitions and his own prejudices, we have a type we know convincingly and humorously given; while in Sir Richard Dodsworth (Mr. Kenyon Musgrave) and his wife, Lady Dodsworth (Miss Hamley Clifford), we have excellent character studies of the dull and pompous *parvenu* type, insufferably proud of honours they have in no ways deserved. The young lawyer, Felix Galpin (Mr. W. Graham Browne), is another interesting and well-known type, the aspiring professional man, ready to square his actions with circumstances to secure a start. His *fiancée*, Ella Southwood (Miss Margaret Brühling), serves to accentuate the whole keynote of the play—the ascendancy of personal interest over greater public ones.

The scene throughout is laid in Felix Galpin's house, St. John's-hill, Warkinstall, and takes place in a room which has evidently been panelled from a decorator's rather than an architect's designs, and thus, from the point of view that the drama should represent life as it is, is more in accordance with facts than would be an interior whose architectural treatment would please us better.

At the Queen's Theatre, Shaftesbury-avenue, W., is being played a piece entitled "This Way, Madam!"—a farce of much merit, adapted from the French by Messrs. Sydney Blow and Douglas Hoare, and which shows its French origin unmistakably. The firm of Messrs. Bonnipard & Faribol (parts well played by Mr. Henry Wenman and Mr. Arthur Chesney), dressmakers, are hopelessly behind the times, and they are finally persuaded to engage Armand Desroches—admirably acted by Mr. Maurice Farkoa—who has made the fortune of a rival firm, though they do so with many misgivings, as this wonderful person is not only an artist-dressmaker, but is a dangerous and conceited lady-killer, who, solely "in the interests of the firm," gives up his Wednesdays to entertaining lady customers at his flat, and the two old friends and partners fear that his fatal fascination will be too much, not for his own wife—that, of course, would be impossible—but for the wife of the other. Armand Desroches engaged, the fortunes of the firm immediately revive, but not only are the fears of the partners amply justified, but Armand Desroches himself is driven almost to distraction by the conduct of his customers, and earnestly desires to find one woman at least who will revile and even hate him. This woman, Marie Ange, the typist (vivaciously and admirably acted by Miss Mabel Sealby), happens to be at his elbow, and she cordially dislikes him for being a conceited philanderer, and shows sufficient dislike to excite a real passion in Desroches which, in the end, is returned. Obviously a setting of this kind lends itself to many comic situations, which are taken full advantage of by the actors, with the result that the farce may be said to be highly entertaining, admirably constructed and played, and suitably staged. It is preceded by "Stuffing," by Goerge Paston, a short and not very pleasing sketch of life among the poor, though it is capitally played by Mr. H. J. Ford, Miss Dorothy Rundell, and Miss Adie Boyne.

"The New Duke," now being played at the Comedy Theatre, is a highly diverting farce, the inspiration of which is based on the theory and practice of eugenics. A bachelor professor of eugenics, capitally acted by Mr. Weedon Grossmith, suddenly finds himself a duke, the last of an illustrious line, and the new position is far from congenial to him. His troubles are varied and many, but the worst is the dowager duchess, who does not conceal her dislike to him and his ways, but in order that the dukedom may not become extinct does her best to provide him with a wife. The duke, however, prefers that two of his professor friends should render him their services in this respect, and their choice falls on the handsome daughter of a charwoman (Miss Dorothy Drake), who later on becomes the mother of twins. There are some incongruities in the play, but accepted in the right spirit it is a capital production, which is likely to amuse the Comedy audiences for some time to come. The amusing difficulties of Mr. Grossmith as the new duke, the spirited acting of Miss Mary Rorke as the dowager duchess, and the remarkably realistic personation of the Cockney mother of the new duchess, by Miss Mary Brough, helped to make a very amusing and interesting play, which is very well staged and the accessories to which are well thought out.

WORKMEN'S COMPENSATION STATISTICS.

THE fifth Report on Workmen's Compensation since the Act of 1906 came into force has just been issued, but, interesting as are the figures which it contains, it does not enable the total sum expended in compensation to be ascertained.

In seven industries—mines, quarries, railways, factories, harbours and docks, constructional work, and shipping—returns are compulsory, and therefore better statistics are procurable; but even in these returns only the actual amounts paid to workmen or their dependants are given, and the sums expended in law costs, administration, etc., have to be merely estimated. In the year 1912 the sums so actually paid amounted to £3,174,101, an increase of £117,697 on the previous year; but the Report states that if the other expenses are added the total amount expended cannot have fallen far short of £5,000,000. The working population engaged in these seven industries is estimated at 7½ millions.

In other industries the statistics, of course, are less perfect and the Report can only deal with those over which the Courts have had cognisance, either by litigation or by memoranda having been registered. Litigation arises in comparatively few cases, but it is desirable that a memorandum of any agreement to pay compensation should be registered, as it would not only be useful from a statistical point of view, but it would also obviate disputes and consequent litigation. In an article in these pages, March 7 last, we referred to this point, indicating the divergence of opinion which exists as to whether the Act makes registration compulsory.

In the building trade 851 cases appear to have been brought into Court, but the total sums awarded are not given.

The compensation in 173 cases amounted to £11,303, and the weekly payments in 174 cases to £114 5s. 6d., and memoranda were registered for £49,614 11s. 7d. in lump sums and £234 0s. 8d. in weekly payments.

As regards industrial diseases, the Report states that returns are not obtained from house painters as to lead poisoning, but 150 certificates were given in that industry by the certifying surgeons.

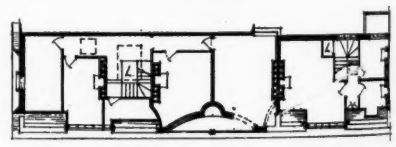
As apart from the building trade proper, it must be borne in mind that "constructional work" includes the construction of railways, tramways, canals, harbours, bridges, tunnels, sewers, roads, etc., and sums awarded under this heading are not included in the figures given above for the building trade.

The more certain remedy afforded by the Workmen's Compensation Act continues to displace the Employers' Liability Act. In 1898 879 actions were brought under the latter Act, but the numbers have almost continuously fallen, and reached the lowest number recorded in 1912, when only 197 actions were brought. The bulk of these actions were in connection with factories and the building trade.

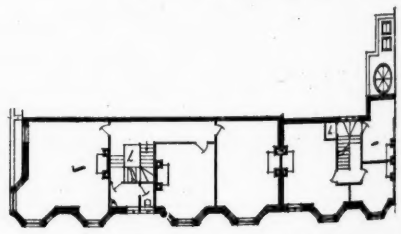
The possibility of obtaining a lump sum for personal injuries may be the cause of the older Act being resorted to, but it affords a more uncertain remedy, and is more costly, as the average amount of solicitors' costs under this Act amount to £18 12s. 3d. as compared with £11 0s. 11d. under the Workmen's Compensation Act.

We imagine the Employers' Liability Act would cease to be resorted to at all if the provisions of sect. 1, sub-sect. 4 of the Workmen's Compensation Act were repealed, which enable workmen who have taken proceedings under the Employers' Liability Act and failed in those proceedings to claim compensation. It has for some time been debated whether the Employers' Liability Act should not be allowed to lapse now that the Workmen's Compensation Act provides efficient, adequate, and inexpensive remedies. Proceedings under the Employers' Liability Act involve employers in tiresome and costly litigation, and it is difficult to see why the Act should be kept alive by the offer of compensation where the action has proved abortive.

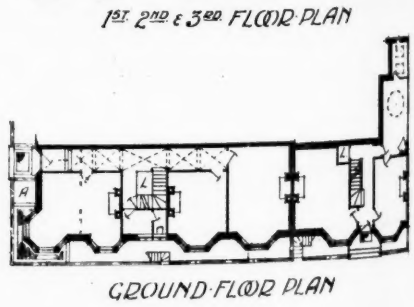
The value of the present Blue Book would be enhanced if more exact figures could be given of the expenditure incurred under the Act to all classes.



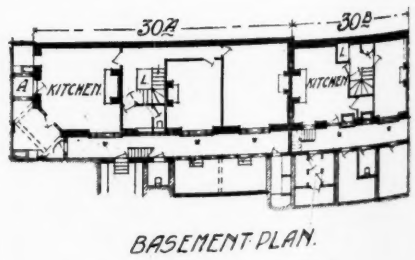
FOURTH FLOOR PLAN



1ST 2ND & 3RD FLOOR PLAN



GROUND FLOOR PLAN



BASEMENT PLAN.

No. 30a, Wimpole-street.

Messrs. Banister Fletcher & Sons, Architects.

No. 30a, Wimpole-street.

Messrs. Banister Fletcher & Sons, Architects.

TWO HOUSES, WIMPOLE-STREET, W.

THESE houses have recently been erected by Dr. Irwin Moore at the corner of New Cavendish-street and Wimpole-street, and one of the objects kept in view was to make the utmost of all the available space. The building is constructed with fire-resisting materials, and is a good example of expanded steel concrete construction. The entrance-halls and steps are paved with black-and-white marble. The staircases in both buildings are of concrete faced with oak treads, the floors and roof are constructed of concrete 5 in. thick, reinforced with mild-steel bars. On the fourth floor there is a belvedere with a wall at right angles to the front, carried on a reinforced-concrete beam formed above instead of below the floor slab. The roofs have been designed with the idea of their use as gardens. The interiors of the houses are finished with oak-panelling, and the doors on the ground, first, and second floors, and the whole of the staircase, are of the same material. The principal floors are laid with polished oak blocks. Both houses are fitted with a safety electric lift running from the basement to the top floor, with automatic push-button controls. The principal rooms have been planned for use as consulting rooms, and have provisions for lavatory basins, with hot and cold water. The façade is of carefully-selected Portland stone, and the casements are of steel, with leaded glazing. The general contractor was Mr. A. Monk, Lower Edmonton, London, N. The architects are Messrs. Banister Fletcher & Sons, New Bridge-street, London, E.C.

WOODEN COTTAGES AND RURAL HOUSING.

The Guildford Rural District Council have received from Dr. R. W. C. Pierce, Medical Officer of Health, a Report on a weather-board cottage recently erected by Mr. J. St. Loe Strachey on Merrow Common, near Guildford. Dr. Pierce remarks that, while the wooden cottage could, apart from certain defects, be passed as satisfactory from a health point of view, he did not recommend the general adoption of this type of cottage in rural districts. A more artistic and substantial structure should be aimed at, even at an increased cost. He was of opinion that the present-day difficulty, caused by the disparity between the high cost of construction and the low wages of the workers, should not be bridged over by the erection of unsatisfactory dwellings which in a few years' time it might be necessary to supersede.

BOOKS.

Coast Erosion and Protection. Illustrated. By ERNEST R. MATHEWS, A.M.Inst.C.E., etc., Borough Engineer of Bridlington. (London: Charles Griffin & Co., Ltd., Exeter-street, Strand. 10s. 6d. net.)

MR. MATHEWS'S book is a useful contribution to the few volumes which at present form too small a part of a technical library. The book is principally based on articles contributed by the author to *Engineering*, and, like most works evolved on these lines, the text has suffered somewhat in the process.

Any work dealing with the subject of coast erosion on which such divergent opinions exist is sure to be greatly criticised by those engineers whose views do not necessarily coincide with those of the author. Fortunately, however, the book is largely restricted to questions of fact, and, in this respect, the data it contains, more especially the excellent diagrams and the photographic reproductions, form a valuable work of reference. The reader is left under the impression that standardisation in design of sea walls and groyning is the ideal to be striven for. Nevertheless, the author seems conscious of this dangerous axiom when referring to groynes, since he admits that "what would be entirely successful on the East Coast might be unsuitable for the South."

It is refreshing to find an engineer such as Mr. Mathews, who is daily called upon to deal with questions affecting marine works, having the courage of his own opinions and fearlessly expressing them. As to the author's ability to deal with such a vexed question as "the most efficient profiles of sea walls," there should be little doubt; the evidence of his handiwork at Bridlington cannot fail to impress even the most casual observer. One must, therefore, forgive so many references in one book to this little pleasure resort on the East Coast. After reading the book one feels convinced that, of the many attractions which Bridlington has to offer, none is so great as the variety and excellence of its sea walls and promenades!

One of the most valuable chapters is that dealing with the action of sea water on cement and concrete; it is to be trusted that Mr. Mathews's warning to his profession in this respect will not pass unheeded. On the other hand, the short section of the book which deals with timber would seem to indicate that the author has not had large experience in works of any magnitude constructed with this class of material. His statement that pitch-pine is procurable "in large scantlings . . . and of lengths up to 40 ft." is likely to mislead, as is evidenced by the numerous jetties and dolphins constructed in this particular timber, in deep water, in the River Thames, where lengths of 60 ft. and upwards are sometimes met with. Indeed, although the book, as a whole, is a useful recital of facts, a greater degree of accuracy could be wished for in many of the statements which it contains.

One of the drawbacks to existing works on the same subject is the fact that they do not always deal with the latest practice. In this respect, however, the present book is all that could be desired; reference is even made to the De Muralt systems of protecting low-lying lands by means of reinforced concrete facings, which systems may be classed amongst the latest innovations in maritime works.

Practical Stone Quarrying. By ALLAN GREENWELL and T. VINCENT ELSDEN. (London: Crosby Lockwood & Son.)

OWING to the unique geological formation of this country it is very rich in natural stone, mostly of excellent quality. It is not generally realised that there is an annual output from our quarries of nearly 50,000,000 tons. This work is the first to attempt to deal with the principles of the industry, and should prove useful to quarry owners, builders, and others. The subject is dealt with in a comprehensive manner, and the authors have avoided unnecessary detail. This should commend it to those who have to qualify for quarry inspectorships, particulars of which are given. There is reason to believe that before long managers may also have to qualify. In many districts there is a lamentable amount of local prejudice, which prevents new methods being tried. This would be largely remedied if managers had a wider knowledge of current practice. Unfortunately, the large proportion of quarries in this country are small ones, about 80 per cent. employing less than ten men inside the quarry. Quarries of this size could not pay a trained manager an adequate salary.

The use of boreholes in locating deposits is, of course, of the greatest importance, but the authors do not sufficiently indicate its limitations. Often the actual core raised is only about 85 per cent. of the depth drilled, this being due to the rotation of the core and consequent grinding along cracks. As the softest rock is ground away the fastest there will be an abnormal percentage of hard rock in the part recovered. Modern types of drill casing have largely remedied this, but not with full success.

In the chapter on rock drills far too much consideration has been given to electric types. The solenoid type has proved far from satisfactory in practice, while the motor-driven percussion drill is almost negligible. Electric-air drills of the Ingersoll Randt type have advantages for scattered quarries, but in quarries where the work is concentrated a central compressor would often be the best.

There are some notable omissions. Hammer drills taking live steam have now been brought to a high state of efficiency. In many cases quarries which could not afford a compressor could utilise existing boilers. Great advances have been made recently with rotary hydraulic drills. The drill is rotated, and also pressed against the face by water pressure. If their use becomes general they may largely help to solve the phthisis problem. Much care has been taken to define the characteristics of a stone suitable for dimension quarrying. The direction of the quarry face must be adapted to the main cleavage system of the rock and its direction of dip.

Mineralogical classification as applied by quarry owners is apt to be elastic. For instance, much of the macadam sold as dolerite is not so. The latitude which previously prevailed in the sizing of macadam was remedied by the fixing of standards on the recommendation of the Royal Commission. Stones of much the same chemical composition may have widely different characters. We think more attention should have been given to the relation between the physical structure of stones, as revealed under the microscope, and their economic value. This is especially necessary considering the difficulties that beset architects in selecting good building stone, and the necessity for scientific examination of deposits before exploitation.

Changes in Government administration of quarries are indicated and much valuable information is given as to royalties charged by owners in different localities.

The number of accidents in quarries to-day is much too large, and it is to be hoped that the

proposed appointment of sub-inspectors will help to diminish them.

The descriptions of quarry machinery are necessarily brief, but form a good summary of modern practice. Some good details of power costs are given in this section, but these would have been more valuable if depreciation and establishment charges had been allowed for. It it essential in a small quarry that working parts should be simple and replaceable in the quarry blacksmith's shop. We fear that with many of the machines described economy would only begin after large numbers had been installed. The expense of upsetting routine by installing one machine is often much greater than anticipated.

By an odd mistake in the Finance Act owners of limestone quarries have escaped duty altogether. The intention apparently was to exempt limestone used for kiln and fluxing purposes, but the Act is worded to exclude all forms of calcium carbonate.

The Theory and Design of Structures. By EWART S. ANDREWS, B.Sc. Third Edition. 1913. (London: Chapman & Hall, Ltd. 9s. net.)

THE sub-title of this work, "A Text-Book for the Use of Students, Draughtsmen, and Engineers Engaged in Constructional Work," very aptly describes the scope of the volume, though it is as well to mention that, while the mechanical engineer will find it useful in designing the framings and housings of his machinery, it has been written almost exclusively for the civil engineer.

Bridges, roofs, columns, floors, retaining walls, and reinforced concrete are the main subjects, all of which are very lucidly treated.

The author very properly takes nothing for granted except that the reader possesses a fair stock of patience and mathematics, and therefore begins with a series of definitions which are good and in plain language. Graphs, or constructional diagrams for the evasion of tedious calculations, supplement the algebraical formulæ for those who prefer them. The numerous examples of actual engineering problems lend realism and interest to the study of an otherwise dry subject.

The drawings of assembled work are mostly reproduced from *Engineering* and the *Engineering Record*. In many cases they would serve as efficient workshop drawings if photographically enlarged, so abundant is the detail and so clear the printing.

Credit is given for, and much use is made of, the highly scientific tables of the properties of various sections rolled by the leading steel works, which these firms give away to their customers.

The appendix is the special feature of the third edition. Stanton's experiments on wind pressure are given and very fully dealt with, their bearing on the design of roof trusses being illustrated in a special stress diagram. The properties of British standard sections of steel are tabulated in detail.

A highly ingenious set of stress diagrams are shown illustrating the labour-saving use which may be made of a set square having a parabolic diagonal.

One hundred and twenty clearly-defined and very pertinent engineering problems for the student to work out are set forth as exercises (with the answers) at the end of this very useful book.

THE NATIONAL GAS CONGRESS AND EXHIBITION, 1913:

INTERNATIONAL EXHIBITION HALLS, SHEPHERD'S BUSH, W.

THE Exhibition formally opened on October 1 by the Lord Mayor of London is by far the largest of its kind ever organised, and celebrates the centenary of the gas industry and the jubilee of the Institution of Gas Engineers. Inaugurated under the auspices of the Joint Committee representing the Institution of Gas Engineers, the Society of British Gas Industries, the British Commercial Gas Association, and the leading gas companies and Corporation Gas Committee of the United Kingdom, the object of the Congress and Exhibition is to demonstrate in various ways the stage of development which the industry has reached in this country and the services it is capable of rendering to all branches of the community.

Sir Corbet Woodall, D.Sc., M.Inst.C.E., is the President of the Congress and Exhibition, Mr. Edward Allen, M.Inst.C.E., President of the Institution of Gas Engineers, being Chairman of the General Committee, and Mr. F. W. Goodenough, Executive Chairman of the British Commercial Gas Association, is Chairman of the Executive Committee.

An unusual feature of the Exhibition is that the leading manufacturers of gas stoves, fires, furnaces, and fittings have agreed to co-operate with the gas undertakings of the country in providing one comprehensive and co-ordinated exhibit instead of the familiar collections of competitive stands to be seen at most trade exhibitions. The leading idea is to present to the public in a coherent manner, as far as possible in their proper environment, representative examples of the best gas appliances and fittings now obtainable, and thereby to provide convincing evidence of the advances made during recent years. As one of the Exhibition officials remarked to our representative on the occasion of his visit: "We are here, not to boom any particular appliances, but to encourage the sale of gas." To give some idea of the extent of the gas industry in the British Isles it may be mentioned that the total capital employed at the present moment amounts to £126,000,000, and to this figure must be added the aggregate capital of the subsidiary trades for which the industry creates employment.

The Exhibition and Congress rooms occupy seven separate halls, wherein the various exhibits are arranged in a manner that not only provides a fine spectacular effect, but also enables the visitor rapidly to locate any objects in which he may be specially interested. One also has the opportunity of closely inspecting the contents of the stands without the distraction furnished by the efforts of the usual persistent salesman. At night the exterior of the Exhibition buildings is illuminated by high-pressure gas lamps of the Keith-Blackman and Welsbach types, and the public have the opportunity of judging the efficiency of advertising signs designed on a new plan, whereby the actual gaslights are concealed from the eye and shielded from the wind.

In the Industrial Hall the general lighting of the left-hand gangway is effected by thirty-four 600-candle-power high-pressure gas lamps, half supplied by Messrs. W. Sugg & Co., Ltd., and half by Messrs. Tilley Brothers. The lighting of the various sections is provided for by high and low-pressure lamps and lights by the Bland Light Syndicate; Messrs. G. Bray & Co., Ltd.; Messrs. Falk, Stadelmann, & Co.; Messrs. G. Hands & Co.; the Helm Lamp Company; Messrs. C. H. Kempton & Co.; Messrs. A. E. Podmore & Co.; Messrs. J. & W. B. Smith; Mr. W. Smith; Messrs. W. Sugg & Co., Ltd.; the Welsbach Light Company; and Messrs. Tilley Brothers.

A gas-engine and compressing station near the entrance includes a range of Hornsby-Stockport gas-engines of from 4½-h.p. to 63-h.p., driving shafting and compressors for the Apprentices' Training Shop exhibit; a neat self-contained Pinkney 1½-h.p. set for generating electricity for charging motor-cars and accumulators; three small Pinkney gas-engines, a gas-driven fan, and other apparatus illustrating some of the directions in which gas can be conveniently applied by residents in large houses, as well as by those engaged in commercial and industrial pursuits.

In the middle of the hall will be found an installation of National gas-engines driving Keith-Blackman compressors for the supply of high-pressure gas to the exterior and interior lamps.

An additional illustration of the application of gas for power purposes is furnished by the electric generating station on the opposite side of the hall, where a 72-h.p. Crossley engine is shown driving a 39-kilowatt dynamo, gas-engines of the same make from 7-h.p. to 16-h.p. being also exhibited. In this hall, also, an Apprentices' Workshop has been organised by the Gas Light and Coke Company. The workshop is very completely fitted with all requisites for teaching the practical details of gas-fitting and the construction, testing, and fixing of gas appliances, and it may be seen in full swing, the lads there engaged having been drafted from the works of the Gas Light and Coke Company. The equipment also includes gas-cooking and other apparatus for the instruction and use of the apprentices.

Elsewhere in the hall industrial processes are illustrated demonstrating diverse applications of gas, among them being aluminium founding, enamelling and annealing, laundry-work, incandescent mantle-making, steel-hardening, and printing. The remainder of the Industrial Hall is occupied by a meter-making and testing shop, where one may observe the precision attained in the manufacture of gas meters, and the care exercised in testing all forms of gas-measuring instruments. Sixteen of the leading manufacturers of gas meters have co-operated in this instructive exhibit.

In the Arcade, between the Industrial and the Domestic Halls, three sections are devoted to the important by-products of gas manufacture. One of the sections is occupied by the Sulphate of Ammonia Committee, who demonstrate the usefulness of these residual products for industrial, agricultural, and horticultural purposes.

The Domestic Hall is a department of the exhibition appealing specially to the architect as well as to the public generally. Immediately on entering this hall the visitor finds to the right a country cottage, arranged to show how gas may be used to simplify the service and servant problem. The verandah is lighted by a Smith outside lamp; the greenhouse includes a 3-light Sugg ventilating lamp and a main heating apparatus; the bedroom is fitted with Welsbach inverted lights, a Wright 14-in. fire with Larkin boiler, and a Clark curling-iron stove; the kitchen is illuminated by Welsbach lights and is provided with a comprehensive installation of cooking and heating apparatus, including a Potterton combined gas and coke range, Richmond toaster, steamer and geyser, a Cannon domestic griller, a Ewart bath and sink, and a Fletcher gas-iron; the sitting-room has two patterns of Welsbach lights and a Vulcan 10-in. gas fire, and the washhouse includes a Richmond wash-boiler, as well as a Davis argand condensing stove for warming.

Two other interesting exhibits in the same hall are provided by a large and a moderate-sized town house. The rooms constituting these residences have been placed at the disposal of numerous specialists, who have combined to present a most interesting display of apparatus for various domestic purposes. Lighting is represented by lamps, burners, and fittings in great variety, chief among them being those of the Bland, Bray, Burroughs & Watts, Falk, Ingram & Kemp, Kempton, New Inverted, and Smith types. Gas fires, stoves, and cooking apparatus are represented by well-known names such as Arden Hill, Cannon, Clark, Davis, Edgar, Fletcher, Main, Parkinson, Richmond, Sugg, Vulcan, Welsbach, Wilson, and Wright. The equipment also includes several patterns of water-circulators and boilers, geysers, clothes-airers, towel-rails, radiators, and such conveniences as water sterilisers, refuse destructors, cigar-lighters, and curling-iron stoves.

The needs of those who do not aspire to the possession of a town house are only considered in a typical model tenement comprising living-room, bedroom, and combined scullery-bath-room, as well as in a model worker's flat. These two exhibits include series of judiciously-selected apparatus for warming, cooking, and hot-water supply. The artist's studio in the same hall is typical of a self-contained dwelling for one person, although actually designed and furnished as a studio, the gas appliances comprising lights, cooking-stoves, geyser, two gas fires, and a cigar-lighter.

As efficient gas fires are now obtainable in so many different sizes and patterns, it has been thought desirable to provide a special stand devoted to this class of appliance, so that visitors may have an opportunity of inspecting alternatives to the patterns exhibited in the rooms of the dwellings mentioned above. Near this stand and against the end of the smaller town house are placed a large fish-frying apparatus, and a combination gas-cooker, fire and water-heater set, available as an alternative to the apparatus shown in the kitchen of the house itself.

The Engineering and Miscellaneous Hall contains stands devoted to gas fires, apparatus for the supply of cool and warm air to rooms, wall-papers and illumination, bath appliances for public institutions, the lighting and warming of offices, cookery and laundry centre gas equipment, hotel kitchen equipment, gas appliances for hospital wards, bathrooms, and nurses' sitting-rooms, the scientific illumination of a model classroom, and church lighting and heating, while in the middle of the hall may be seen a model gasworks laboratory.

The air cleansing and warming apparatus is of the Wilson type, and consists of a fan, air-cleansing chamber, and a series of gas-heated hot-water radiators. After having been through the cleansing chamber the air is warmed by

being passed over the radiators, and is then delivered in the required volumes to the apartment to be warmed, thereby ensuring effective ventilation as well as warmth, a method distinctly preferable to the system of simply warming the air already in the apartment.

An exhibit of much practical value is one next to the gas-fire stand, comprising a number of cubicles, all lighted by burners of equal candle-power, but having the walls covered by papers of different colours. The object is to indicate the proportion of light absorbed by various wall coverings, and thereby to afford guidance to those responsible for the means necessary to ensure adequate light in the natural and artificial illumination of rooms and buildings.

Among the other sections in the hall there are several to which the attention of architects may be specially directed. Two of these are devoted to installations of shower-baths and other fittings, by Messrs. S. Ewart & Son, suitable for workhouses, reformatories, and public institutions generally. Two sections near at hand contain a full selection of gas equipment for a cookery and laundry centre, the cooking appliances having been supplied by the Davis Gas Stove Company; the Imperial Stove Company, Ltd.; Messrs. R. & A. Main, Ltd.; Messrs. J. Wright & Co., Ltd.; and laundry apparatus by the Cannon Iron Foundries, Ltd.; the Davis Gas Stove Company; and Messrs. Wilsons & Mathiesons, Ltd. The adjoining hotel kitchen is a good illustration of the "all-gas" system, and includes a representative installation of apparatus of the Arden Hill, Cannon, Davis, Fletcher, Parkinson, Richmond, Stott, and Wright types.

Three succeeding sections relate to the utilisation of gas in hospitals. The first represents a small section of a hospital ward, and illustrates the employment of gas in the lighting and heating of such buildings; the second contains various sanitary appliances by Messrs. Davis & Bennett, supplied with hot water from the battery of gas-heated boilers in another section. Attention may be drawn to the arrangement whereby surgeons may turn hot and cold water on and off by means of foot levers, so as to obviate the need for handling taps. Sterilising, fumigating, and refuse-destroying apparatus are features of this exhibit. The third section is fitted as a sitting-room for hospital nurses, with gas-lighting, warming, cooking, and sterilising appliances, a curling-iron stove being added as an appeal to feminine susceptibilities.

The scientific lighting of a classroom is illustrated in the next section, which reproduces part of the system installed in the Camden-street Schools of the London County Council for the observation and information of the Illuminating Engineering Society. Among other special fittings, we may mention a lamp for lighting blackboards, and pendants designed so as to maintain an adequate amount of illumination on every desk without permitting the rays of light to come directly upon the eyes of scholars.

Church lighting and warming are represented in the succeeding section, where the visitor has an opportunity of inspecting various arrangements for the lighting of pulpits and reading-desks, the concealed illumination of altars and Communion tables, and the distance control of lights from any convenient point.

The employment of gas for warming buildings of this class is illustrated by gas-heated hot-water radiators of the Wright type.

The section containing a Model Gasworks Laboratory is perhaps the most interesting feature of the Engineering and Miscellaneous Hall. Here examples of all the principal instruments for testing the purity, calorific, and illuminating values of gas are shown. The laboratory has been fitted up, and is shown at work by Messrs. Alexander Wright & Co., under the personal direction of Mr. Jacques Abady, the well-known photometric specialist, and his partner, Mr. John Simmance. We are informed that the instruments in the photometric-room, as well as the experience of expert physicists, will be at the disposal of anyone wishing to test any particular form of lamp—a facility which will no doubt be widely appreciated by professional men visiting the Exhibition.

Among some of the many delicate instruments used in the manufacture, testing, and distribution of gas attention is directed to that invented by Mr. J. G. Tapley for the purpose of obtaining a complete analysis of gas, the direct determination of nitrogen and carbon contained and for ascertaining the constitution of liquid hydrocarbons, such as motor-spirit and benzine. The gravitometer and the calorgraph of Messrs. Abady & Simmance are of equal interest, the former registering the gravity of gas by means of a pointer passing over a scale subdivided to three decimal places, and the latter recording on a chart the heat obtained from the gas under test.

The three remaining halls, occupied mainly as Refreshment, Conference, and Lecture rooms, afford scope for the exhibition, in working order, of numerous varieties of lighting, heating, and cooking apparatus and fittings, and the last hall, forming an approach to one of the emergency exits, is occupied by lamps and standards of various types for street lighting by gas, either under ordinary pressure or high pressure.

The low-pressure lamps in this hall range up to 500-candle-power each, and have been furnished by Messrs. Alder & Mackay; Messrs. D. Anderson & Co.; the Bland Light Syndicate; Messrs. G. Bray & Co.; Mr. W. Edgar; Messrs. Falk, Stadelmann, & Co.; Messrs. T. Glover & Co.; the New Inverted Incandescent Lamp Company, Ltd.; Messrs. Parkinson & Cowan; the Pneumatic Gas Lighting Company, Ltd.; Messrs. A. E. Podmore & Co.; Messrs. J. & W. B. Smith; Messrs. W. Sugg & Co., Ltd.; and the Welsbach Light Company, Ltd. The high-pressure lamps, varying from 1,000 to 2,000 candle-power, were supplied by the Keith-Blackman Company, Ltd.; Messrs. W. Sugg & Co., Ltd.; and the Welsbach Light Company, Ltd. The exhibit includes a pressure register and a pressure recording clock by Messrs. Alder & Mackay, and a gas-compressor set, of 500 cubic ft. per hour capacity, by Messrs. W. Sugg & Co., Ltd. Attention should be directed to the various devices shown for lighting and extinguishing street lamps from a central control station, and to the raising and lowering gear fitted to the lamps suspended in the centre of the hall.

The pressure of the services throughout the Exhibition is maintained at a constant level by means of numerous governors of the Milne, Peebles, Stott, and Sugg types; and the lamps used for the general lighting are controlled in sections by special valves originally designed for railway-station lighting.

For the purpose of adding to the educational value of the Exhibition the Executive Committee have arranged a comprehensive programme of cookery lectures and demonstrations, popular lectures, and conferences. Cookery lectures and demonstrations are given twice daily under the superintendence of Miss Edden, chief lady adviser of the Gas Light and Coke Company, assisted by Miss Royle, chief demonstrator for the Brentford Gas Company, and a large staff of qualified lecturers. The daily programme of popular lectures covers numerous subjects of practical importance to gas users, and includes a series of three lectures by Professor Vivian B. Lewes on "The Evolution of Gas Lighting and Heating." Eight conferences will be held during the continuance of the Exhibition, and at them many points of domestic and professional interest will be discussed. One of the most important of these gatherings was the conference on Coal Smoke Abatement, held on Thursday, when papers were presented by Sir William Richmond, R.A.; Sir William H. Bennett, F.R.C.S.; Professor Vivian B. Lewes; and Dr. des Voeux, Hon. Treasurer of the Coal Smoke Abatement Society.

The remaining conferences will be devoted to the lighting, heating, and ventilation of schools, factories, and places of business, the principles of scientific illumination, and other aspects of gas as a source of light and heat. Among those who have promised papers are Professor Silvanus Thompson, F.R.S.; Mr. Leon Gaster; Mr. Septimus Warwick, F.R.I.B.A.; Mr. Austen Hall, F.R.I.B.A.; Dr. Samuel Rideal; Professor Leonard Hill, F.R.S.; Professor Vivian V. Lewes; and Professor W. A. Bone, F.R.S.

Taken as a whole, the Exhibition is one of very great interest and practical value, and we are convinced that it may be visited with profit by all who are concerned professionally or otherwise in the installation of apparatus and fittings for lighting, heating, and cooking. As the Exhibition will remain open until November 1 our readers still have ample time for a visit to this unique and admirably-conceived demonstration of the important service capable of being rendered to the community by coal-gas.

LEGAL CORRESPONDENCE COLUMN.

Note.—Answers to inquiries in this column are furnished gratuitously, and strictly on the understanding that no legal liability or responsibility of any kind is accepted or incurred thereby. Correspondents who desire to make use of this column, while supplying their names and addresses in full to the Editor, should also give a nom de plume *under which the inquiry can be answered.*

RAETAM.—In reply to your inquiry, you do not say whether the contract for commission alluded to was an express or implied one. In the case of an express contract—*i.e.*, a contract reduced into writing or established by definite oral evidence, we can express no opinion without reference to its actual terms. For instance, it is not unusual where an express contract is made, to make the fact of the negotiation going through, a condition precedent to any right to claim remuneration. Where, however, there is no express contract or no express contract except as to the amount of the remuneration, the right to it will depend on an implied contract to the effect that the agent will actually bring the parties together as regards all substantial questions. Where this has been done and the negotiation subsequently goes off, as in your case, through the principal subsequently revoking the terms arranged for the agent to treat, we do not think the principal would be entitled to set up failure of the contract as a defence in an action by the agent for the amount of the agreed remuneration. You should, however, be quite clear that the waiver of the condition as regards rent being paid in advance can be established by unimpeachable evidence. As regards the estimate for repairs, if there is an express contract, you would probably be able to recover your fees on the ground that this was a matter outside the terms of the contract, but if the contract is an implied one, then it would probably be regarded as a part of the negotiation.

METROPOLITAN ASYLUMS BOARD.

AT the sitting of this Board on Saturday communications were received from the Local Government Board approving of the plan of alterations and additions to the Brook Hospital laundry; of the proposed extensions at Tooting Bec Asylum; and of the conversion of the old lodge at Long Reach into a steward's residence.

Sea Defence Works.—It was reported that the Local Government Board had authorised the managers to expend £800 for the execution of the necessary sea defence works in connection with the mill property at Rustington: and Mr. F. J. Oldham, in reply to a question, stated that the work would be proceeded with at once.

Queen Mary Hospital.—The tender of Mr. J. Elliman, Beckenham, of £4,985, was accepted for the erection of recreation hall and school-rooms at Queen Mary's Hospital.

Tooting Bec Asylum.—Plans prepared by Mr. T. W. Aldwinckle for a residence for the Medical Superintendent at an estimated cost of £2,360 were approved subject to the sanction of the Local Government Board.

Quantity Surveyor.—Mr. L. Jacob, of Raymond House, Theobald's-road, was appointed to take the quantities in connection with the proposed extension works at this Asylum at a commission of 1 per cent. on the amount of accepted tender.

TO CORRESPONDENTS.

NOTE.—All communications with respect to literary and artistic matters should be addressed to "THE EDITOR" (and not to any person by name); those relating to advertisements and other exclusively business matters should be addressed to THE BUILDER LTD., and *not* to the Editor.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

All drawings sent to or left at this office for consideration should bear the owner's name and address on either the face or back of the drawing. Delay and inconvenience may result from inattention to this.

N.B.—Illustrations of the First Premiated Design in any important architectural competition will always be accepted for publication by the Editor, whether they have been formally asked for or not.

List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this number: Competitions, —; Contracts, iv. vi. viii. x.; Public Appointments, xx.; Auction Sales, xxvi. Certain conditions beyond those given in the following information are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

***** It must be understood that the following paragraphs are printed as news, and not as advertisements; and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur.**

Competitions.

OCTOBER 20.—**Barnet.**—COTTAGES.—The Barnet U.D.C. invite architects and surveyors to submit terms for the preparation of plans, etc., for the erection of workmen's cottages on the Council's estate at Underhill, Barnet, together with roads, sewers, etc., as required. Further particulars on application to Mr. W. F. Wilkins, Surveyor to the Council, 40, High-street, Barnet.

NOVEMBER 1.—**Sofia.**—DESIGNS FOR A ROYAL PALACE AND LAW COURTS.—**Particulars from the Commercial Intelligence Branch of the Board of Trade, Basinghall-street, E.C. See page 173, August 9, and page 350, September 27, 1912; also page 708, June 20.**

NOVEMBER 3.—**Hayti.**—DESIGNS FOR A PALACE.—The Haytian Department of Public Works invites competitive plans for the erection of a palace for the Senate at Port-au-Prince. Plans to the Departement des Travaux Publics Port-au-Prince.

NOVEMBER 29. — **Folkestone.**—BAND PAVILION.—The Folkestone Corporation invite designs for a band pavilion to be erected on the face of the West Cliff. See advertisement in issue for August 15, and "Competition News," August 22.

JANUARY 2, 1914. — **Manchester.**—NEW BUILDINGS AND ALTERATIONS.—The Board of Directors of the Manchester Royal Exchange, Ltd., invite architects to submit designs for additional new buildings and alterations on the existing Exchange buildings. See advertisement in issue for September 5.

JANUARY 2, 1914. — **Ottawa.** — DEPARTMENTAL AND COURTS BUILDINGS. — The Department of Public Works, Ottawa, invite architects to submit sketch designs in a preliminary competition for above buildings. Six will be chosen from these for final competition. The five unsuccessful competitors will receive $3,000. The winner will be entrusted with the work. See particulars in issue for September 19 and advertisement in issue of September 12.

Contracts.

BUILDING.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

OCTOBER 13.—**Huddersfield.**—BATHROOMS, ETC.—The Huddersfield B.G. invite tenders for the erection of bathrooms and lavatories to No. 1 Hospital Block. Plans, etc., of Messrs. Joseph Berry & Sons, architects and surveyors, 3, Market-place, Huddersfield

OCTOBER 13. — **Newcastle-upon-Tyne.**—SHED.—The Guardians of Newcastle-upon-Tyne Union invite tenders for the extension of wood-chopping shed at the Workhouse, Westgate-road. Specification of Mr. G. Walker, Clerk, Union Offices 127, Pilgrim-street, Newcastle-upon-Tyne.

OCTOBER 13.—**North Kyme Fen.**—ALTERATIONS, ETC.—Additions, etc., to house and buildings in North Kyme Fen for the Small Holdings Committee, Kesteven C.C. Specification etc., of Mr. Jesse Clare, County Architect, Sleaford.

OCTOBER 14. — **Crewe.** — OFFICES, ETC. — The Crewe T.C. invite tenders for the erection of new offices, messroom, etc., at the Sewage Disposal Works, Crewe. Information of Mr. Geo. Eaton-Shore, Borough Surveyor, Earle-street, Crewe. Deposit, £1.

OCTOBER 14. — **Darlington.** — SHOP FRONTS.—The Darlington Co-operative Society invite tenders for supplying and fixing new shop fronts in their North-road branch premises. Specification of the Secretary, at the offices, Priestgate, Darlington.

OCTOBER 14. — **Mountain Ash.**—FIRE STATION.—The Mountain Ash U.D.C. invite tenders for the building of a fire station at Navigation Grounds, Mountain Ash. Specification, etc., of Mr. W. G. Thomas, Surveyor, Town Hall, Mountain Ash.

OCTOBER 14.—**Plympton.**—MILITARY BUILDING.—The Territorial Force Association of the County of Devon invite tenders for the erection of headquarters at Plympton. Bills of quantities of Mr F. A. Clark, architect, 83, Old Town-street, Plymouth. Deposit, £5 5s.

OCTOBER 15.—**Brackley.**—BOILER-HOUSE, ETC.—The Guardians of Brackley Union invite tenders for the execution of the following works at the Brackley Union Workhouse:—(1) Installation of steam cooking plant; (2) erection of new boiler-house and bathrooms; (3) providing two baths and two sinks with necessary connections. Specifications, etc., of Mr. C. E. Barnes, Clerk, Union Offices, Brackley.

OCTOBER 15. — **Horsforth.**—HOUSES.—Various trades in the erection of a pair of houses in Horsforth. Plans, etc., of Mr. David Rhodes, Newlay-lane, Horsforth.

OCTOBER 15. — **North Shields.** — LAUNDRY ALTERATIONS. — The Guardians of Tynemouth Union invite tenders for alterations to the laundry at the Union Workhouse, North Shields. Quantities of the architect, Mr. Wm Stockdale, A.R.I.B.A., 81, Howard-street, North Shields.

OCTOBER 16.—**Bridlington.**—HOUSE, ETC.—The Property Committee of the Borough of Bridlington invite tenders for the demolition of 93, Quay-road, and the erection of a new house for the Town's Gardener, and the erection of a Weigh Office. Specification, etc., of Mr. E. R. Matthews A.M.Inst.C.E., Borough Surveyor, Town Hall.

* OCTOBER 16.—**Vauxhall Park.**—PAVILION.—The Lambeth B.C. invite tenders for erection of a pavilion.

OCTOBER 16.—**Wigan.**—ALTERATIONS.—The Corporation of Wigan invite tenders for altering and decorating the pavilion, Mesnes Park. Specification, etc., of the Borough Engineer, Mr. A. T. Gooseman, King-street West, Wigan.

OCTOBER 20. — **Beverley.**—AIRING COURT.—The Visiting Committee of the East Riding Lunatic Asylum, Beverley, invite tenders for the extension of the male airing court at the Asylum. Specifications, etc., at the Board-room, at the Asylum Bills of quantities of the architect, Mr. R. H. Whiteing, Ladygate, Beverley. Deposit, 10s. 6d.

OCTOBER 20. — **Dartford.** — LAUNDRY. — The Guardians of the Dartford Union invite tenders for the erection of a new laundry at the Workhouse, West-hill, Dartford. Specification, etc., at the offices of Messrs. Tait & Hobbs, architects, Lowfield-street, Dartford. Deposit £2 2s.

* OCTOBER 21. — **Manchester.** — LABOUR EXCHANGE.—The Commissioners of H.M. Works, etc., invite tenders for erection of a temporary Labour Exchange.

* OCTOBER 21.—**Tilbury.**—COTTAGES.—The Tilbury U.D.C. invite tenders for erection of 130 cottages, and construction of roads, sewers, etc.

* OCTOBER 22.—**Clacton.**—BANDSTAND, ETC.—The Clacton U.D.C. invite tenders for erection of sheltered bandstand and pavilion, etc.

OCTOBER 22. — **Sevenoaks.** — ADDITIONS AND ALTERATIONS. — The Guardians of Sevenoaks Union invite tenders for the erection of an additional room for Labour Master and alterations to women's lavatories, etc., at the Sevenoaks Union Workhouse, Ide-hill, Sundridge, near Sevenoaks. Specifications, etc., of the architect, Mr. Ernest Pawley, Lic.R.I.B.A., 148, High-street, Sevenoaks.

* OCTOBER 23.—**Blackfriars-road.**—REPAIRS.—The Trustees of St. Martin's-in-the-Fields Charity invite tenders for repairs to fourteen cottages.

OCTOBER 24. — **Saddleworth Friezland.**—SCHOOL.—The West Riding E.C. invite whole or separate tenders for Saddleworth Friezland new school. Specifications, etc., on application to the Education Architect, County Hall, Wakefield. Deposit, £1.

OCTOBER 28. — **Lakenheath.**—FARM BUILDINGS, ETC.—The West Suffolk C.C. invite tenders for the erection of six cottages and three sets of farm buildings, alterations and repairs to existing farmhouse, cottages, and buildings at Undley Hall Farm, Lakenheath. Specifications, etc., from the County Architect, Mr. A. A. Hunt, M.S.A., at 51, Abbeygate-street, Bury St. Edmund's.

NO DATE.—**Halifax.**—HOUSE.—Vicarage house, adjoining St. Hilda's Church. Quantities of Messrs. Jackson & Fox, architects, Rawson-street, Halifax.

NO DATE. — **Mablethorpe.** — The Trustees of Mablethorpe Wesleyan Church invite tenders for the alterations and additions to be made at the church. Quantities of Mr. A. E. Lambert, architect, 28 Park-row, Nottingham, and plans can be seen at the church, Mablethorpe.

ENGINEERING, IRON, AND STEEL.

OCTOBER 13. — **Edinburgh.**—STEELWORK.—The Directors of the Caledonian Railway Company invite tenders for steelwork required in the additional cellarage accommodation for Princes-street Station Hotel, Edinburgh. Specification, etc., of the Company's Engineer, Buchanan-street Station, Glasgow. Deposit, £2 2s.

OCTOBER 14. — **India.** — BRIDGEWORK. — The Secretary of State for India in Council invites tenders for bridgework. Conditions of contract on application to the Director-General of Stores, India Office, Whitehall, S.W.

OCTOBER 14. — **India.** — RAILWAY MATERIALS.—The Bombay, Baroda, and Central India Railway Company invite tenders for the supply of steel rails and fishplates, dog spikes steel fishbolts and nuts, and bearing plates. Specifications of Mr. C. Crommelin, Secretary, Gloucester House, 110, Bishopsgate, London, E.C.

OCTOBER 14.—**London.**—TRAMWAY MATERIAL.—The London C.C. invites tenders for the supply and delivery of 200 driving-wheel centres for electric cars. Specifications, etc., on application to the Chief Officer, London C.C. Tramways, 62, Finsbury-pavement, E.C.

OCTOBER 15.—**India.**—RAILWAY MATERIAL.—The South Indian Railway Company, Ltd., invite tenders for the supply of rolling stock, wheels and axles, springs, steel, wrought-iron bar, best Yorkshire iron, galvanised iron and steel, and wrought iron. Specifications at the company's offices, 91, York-street, Westminster, S.W.

OCTOBER 16.—**York.**—ELECTRIC LIGHTING.—The Guardians of York Union invite tenders for installing electric light in the board-room and offices, Museum-street, York. Specification, etc., of Mr. George Sykes, Clerk to the Guardians.

OCTOBER 21. — **Aberdeen.** — STEEL ROOFS.—The Aberdeen Joint Station Committee invite tenders for the construction of steel verandah platform roofs at the south end of the new station. The works comprise about 340 tons of steel and cast-iron work and about 29,000 sq. ft. of patent glazing. Drawings, etc., at the office of the Engineer Mr. James A. Parker, 30, Guild-street, Aberdeen. Deposit, £1 1s.

OCTOBER 29.—**Belfast.**—HARBOUR WORKS.—The Belfast Harbour Commissioners invite tenders for the construction of certain wharfage and other works collateral therewith to the eastward of the existing 600 ft. wharf on the Co. Down side of the Victoria Channel. Drawings, etc., of the Harbour Engineer, Mr. W Redfern Kelly, M.Inst.C.E., from whom copies of the specification of works may be obtained.

NOVEMBER 3.—**Egypt.**—GALVANISED IRON.—The Egyptian War Department invite tenders for the supply of galvanised corrugated sheets. Particulars from Sir A. L. Webb, K.C.M.G., Queen Anne's-chambers, Broadway, Westminster, S.W.

NO DATE.—**Pontardawe.**—SHAFT.—The South Wales Primrose Coal Company, Ltd., Pontardawe, invite tenders for the sinking of a shaft, 14 ft. in diameter, to a depth of about 150 yds. Specification, etc., of Messrs. Wight & Fidce, consulting mining engineers, Atlas-chambers, James-street, Cardiff.

FURNITURE, PAINTING, MATERIALS etc.

OCTOBER 13.—**Halifax.**—WHITEWASHING, ETC.—The Halifax Guardians require tenders for whitewashing and colour-washing Nos. 1, 2, 4, and 6, male wards, and 1, 2, and 6, female wards, at the Hospital, Salterhebble. Also the main corridor ceiling and the nurses' home, staircases, and corridors at the Poor Law Hospital, Salterhebble. Particulars from the Steward of the Hospital.

OCTOBER 13. — **Littlehampton.** — FLINT.—The Littlehampton U.D.C. invite tenders for the supply of about 100 tons 2-in. dug flints, 250 tons shelliocks, and 100 tons hoggin. Form of tender of the Council's Surveyor, Mr. H. Howard.

OCTOBER 13. — **Littlehampton.** — TAR. — The Littlehampton U.D.C. invite tenders for the supply of about 4,000 gallons of raw tar, and 6,000 gallons of distilled tar. Form of tender on application to the Council's Surveyor, Mr. H. Howard, Town Offices, Littlehampton.

OCTOBER 16. — **Dewsbury.** — PAINTING. — The Guardians of Dewsbury Union invite tenders for cleaning and painting their offices and premises at Wellington-street, Dewsbury. Specifications of Mr. C. P. Pickersgill, Clerk, Union Offices, Wellington-street, Dewsbury.

Continued on page 384.

(Those with an asterisk (*) are advertised in this issue.)

ESTATES AND SITES NOTES.

Palace Yard Improvements.

An integral part of the scheme for improving the approach to the Houses of Parliament consists in the removal of several of the old houses in Abingdon-street as far as the one opposite the entrance to the Victoria Tower. Royal Commission's House, still much used for Government purposes, will remain. The old offices of the Chief Registrar of Friendly Societies and of the Admiralty will be removed, but the Standards Department of the Board of Trade, with its ancient Jewel Tower in the rear—the oldest remaining portion of the ancient Palace of Westminster—will be preserved. The effect will be to greatly improve the present square and to open up the whole front of the Houses of Parliament.

Flats.

Except in one or two favoured spots, such as Portland-place and parts of Kensington, the building of flats has practically stopped, not on account of any lack of demand, but because mortgages are so difficult to obtain for their erection. There is a keen demand for low-rented flats which seems likely to go unsatisfied. It is certainly difficult, with the increased cost of building, to supply these at low rents, and £15 a room, not counting kitchens or servants' bedrooms, may be considered a minimum rent for central positions. The flat habit seems to vary according to locality. Manchester has none, whereas in Glasgow seven-eighths of the population live in flats.

New Board of Trade Offices.

A fine chance of a great courtyard scheme for this building on the Embankment—where, by the way, the present frontage line is to be continued from Whitehall Court—has been missed by the scheme laid down in the conditions for those competing. This reminds us that not long hence it is extremely probable that the whole block from Bridge-street to the War Office will be covered with Government offices, and it would be a wise precaution to scheme the whole area in advance, so that there may be some chance of a presentable development of this prominent area.

Parliament-square.

In the same connection we should like to see the small, irregular block of offices next the fountain and up to the Surveyors' Institution removed and the fountain placed elsewhere. This would give a little more size and shape to Parliament-square, which is at present quite disproportionate to its surroundings.

Ancient Houses of To-Day.

In various parts of Sussex, Kent, and Surrey may be found new houses built after the manner of the old Sussex farmhouse, with old twisted timbers and rough plaster and old tiles or slabs, with such a love for texture and natural use of local materials that they frequently pass for survivals of old yeoman houses. They are built with great regard for style by a builder who is an ardent student of old work and takes a genuine interest in every detail; and it is gratifying to learn that, expensive as such buildings are to build as compared with the lighter fabrics of to-day, he never fails to sell his houses at a price which provides a fair remuneration for the skill and care expended.

Kingston Hill.

Several important properties in this and the Roehampton district have recently been sold to purchasers who formerly lived in Mayfair or Belgravia. They find the rural surroundings so attractive that, now motor-cars have put these places within such easy reach of the centre, they cheerfully give up the town house and cease to regard such places any longer as suburbs. We may expect to see similar developments at Richmond, Wimbledon, and even Sydenham or Blackheath.

The Silver "Theatre Ticket," Colchester.

The insignia of the Mayor of Colchester, acquired by purchase and gift principally during the last two centuries, includes a large and massive silver gift mace, 4 ft. 10 in. in length, wrought by Edward Jennings, a London goldsmith in the year 1728, it being recorded that over 200 oz. of Corporation plate was disposed of to defray the cost. There are also four small silver-gilt maces; the Mayor's gold chain of office presented in 1765 by Leonard Ellington, of London; the Mayor's silver "theatre ticket," which dates from the erection of the first theatre on a site behind the Moot Hall in 1764, etc. The silver "theatre ticket" is among the least usual of the items, it having for 150 years been permitted to frank the Mayor's use of the reserved box in the theatre. It is believed to have been made, and the privilege attached to it granted at the time of the erection of the first theatre, a century and a half ago. Apparently the original edifice was demolished and a second building erected seventy or eighty years ago. The present building is a land-mark in the town. It is built of brick with a severe Classic front possessing spacious reception and crush rooms and a wide stage, while the auditorium has three tall tiers. It is situated in the St. Botolph's quarter of the town, which is the ancient part of the borough abutting on the garrison field. The freehold theatre is to be offered for sale by auction by Messrs. Weatherall & Green, in London, on October 21 as a going concern.

THE LATE W. T. DOUGLASS.

The estate of the late William Tregarthen Douglass, M.Inst.C.E., architect and inspecting engineer to the Royal National Lifeboat Institution, and consulting engineer to several colonial governments, is of the gross value of £38,440, with net personalty £20,627.

Messrs. DENSHAM & LAMBERT,

26, SAVILE ROW, W.,

NORTHWOOD and KINGSWOOD,

Will publish each week a short Register of City and West End Building Sites, of which they make a Speciality, having dealt with Town Sites to the value of £700,000 last year.

City and West End Building Sites to be Let, WITH FINANCES:

PICCADILLY.—Area 6,500 ft. Ground rent 12/- a foot. Prominent position.

CONDUIT STREET.—Area 3,000 ft. Ground rent 5/- a foot.

STOCK EXCHANGE (close to).—Small site. Low ground rent.

SAVILE ROW (best position).—Freehold. Area 4,000 ft. Price, £20,000.

FINSBURY CIRCUS.—Area 20,000 ft. Exceptional opportunity.

COUNTRY ESTATES.

WALTON HEATH, Surrey.

Almost adjoining famous Golf Links. High, healthy, and bracing. Choice woodland Sites for Sale or to be Let on Building Lease.

ELSTREE, Middlesex.

Only 11 miles from London, adjoining main line station. "Deacon's Hill Estate." Choice Sites for Gentlemen's Residences.

NORTHWOOD, Middlesex.

The fastest train service out of London. Building Sites for Sale or Houses Built to Purchaser's or Tenant's requirements.

Architects and Builders are asked to communicate with Densham & Lambert, who can arrange finances and mortgages on approved schemes.

London Offices: **26, SAVILE ROW, W.**

TELEPHONES {42 MAYFAIR (2 lines). 5385 "

TELEGRAMS: "DENSHAMINE, LONDON."

FURNITURE, etc.—*continued.*

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

OCTOBER 16.—**Sheffield.**—IRONMONGERY.—The Education Committee invite tenders for the supply of ironmongery that may be required for general repairs during the ensuing year. Samples, etc., at the Education Office.

OCTOBER 17.—**Guildford.**—TOOLS, ETC.—The Guildford R.D.C. invite tenders for the supply of shovels, brooms, and other roadmen's tools, also oils, waste, and sundries for steam-rollers. Forms of tender from the Council's Surveyor, Commercial-road, Guildford.

OCTOBER 17.—**Preston.**—PAINTING.—The Corporation invite tenders for the painting, etc., required to be done at the Public Hall, fire-station and the public conveniences throughout the borough. Specification at the office of the Borough Surveyor, Town Hall, Preston.

OCTOBER 18.—**Kilmarnock.**—MATERIALS.—The Glasgow and South-Western Railway Company invite tenders for stores, including bricks, fire-clay sewage pipes, etc.; brooms, brushes, etc.; colours, paints, etc.; gas and water fittings; glass, ironmongery, tools, cement, etc. Specifications, etc., of Mr. R. F. Harrison, Stores Superintendent, Kilmarnock.

OCTOBER 18.—**Norwich.**—GRANITE.—The Norfolk C.C. invite tenders for the supply of granite for the repair of the main roads for a period of one year ending December 31 1914. Particulars of Mr T. H. B. Heslop, M.Inst.C.E., County Surveyor, Norwich

OCTOBER 21.—**Maidstone.**—DISINFECTANTS.—Tenders invited for a supply of disinfectants for a period of twelve months, from October 1, 1913, for Maidstone Corporation. Information from the Sanitary Inspector, Fair Meadow, Maidstone.

✱ OCTOBER 22.—**Wembley.**—FENCING.—The Wembley U.D.C. invite tenders for the erection of jarrah and wrought-iron fencing

OCTOBER 23.—**Leeds.**—FLOOR TILES.—The Leeds Corporation invite tenders for the manufacture, supply, and delivery of floor tiles, to cover an area of 18 acres of percolating sewage filters. Contract documents at the office of the Sewerage Engineer, Mr. Geo. A. Hart, M.Inst.C.E., at 26, Great George-street, Leeds. Deposit, £2 2s.

NOVEMBER 24.—**Johannesburg.**—ELECTRIC LIGHT FITTINGS.—For the electric light fittings for the Town Hall and Municipal Buildings, Johannesburg. Specification, etc., at the offices of the London agents of the Municipal Council of Johannesburg, Messrs. E. W. Carling & Co., St. Dunstan's-buildings, St. Dunstan's-hill, London, E.C. Deposit, £3 3s.

ROADS, SANITARY AND WATER WORKS.

OCTOBER 13.—**Broadstairs.**—STREET WORKS.—The Broadstairs and St. Peter's U.D.C. invite tenders for the making-up of York-avenue, Broadstairs. Specifications, etc., of the Town Surveyor, Mr. H. Hurd, C.E., Council Offices, Broadstairs.

OCTOBER 13.—**Earsdon.**—SEWERS.—The Earsdon U.D.C. invite tenders for the providing and laying of about 900 yds. of 12-in. earthenware pipe sewer, with the necessary manholes, etc., at Holywell. Specifications, etc., of the Surveyor, Mr. J. R. MacMillen, at the Council Offices, Shiremoor.

OCTOBER 13.—**Grantown-on-Spey.**—BURIAL GROUND, ETC.—Works in connection with the enclosing and laying-out of new burial ground and access roads at Grantown-on-Spey, viz., earthwork and road-making, building enclosing walls, tool-house, etc., and fencing and gates. Specification of Mr. D. D. Cameron, Clerk to the P.C., Grantown-on-Spey, or of Mr. John Wittet, architect, Elgin.

OCTOBER 13.—**Ilford.**—The Ilford U.D.C. invite tenders for making-up of Aden-road, Arundel-gardens, Auckland-road, Bradford-road, Charlbury-gardens, Clarissa-road, Oakwood-gardens, and Quebec-road. Specifications, etc., of Mr. H. Shaw, M.Inst.C.E., Engineer and Surveyor to the Council, Town Hall, Ilford. Deposit, £2 2s.

OCTOBER 14.—**Fishburn.**—LATRINES, ETC.—The C.C. of Durham invite tenders for the erection of latrines and laying of necessary drains for the proposed school at Fishburn. Specification, etc., of Mr. W. Rushworth, Shire Hall, Durham.

OCTOBER 15.—**Glamorgan.**—ROADS.—The Glamorgan C.C. invite tenders for the following works of widening on the Cardiff and Pontypridd main road:—(1) At Tongwynlais; (2) at Nantgarw; and (3) at Rhydyfelin. Specifications, etc., at the Police-station, Pontypridd, and at the Glamorgan County Hall, Cardiff.

OCTOBER 16.—**Bournemouth.**—DRAINAGE.—The Corporation of Bournemouth invite tenders for the construction of Springbourne surface water drainage. Specifications, etc., of the Borough Engineer, Mr F. W Lacey. Deposit, £1 1s.

OCTOBER 17.—**Lancaster.**—STREET WORKS.—The Lancaster Corporation invite tenders for forming, paving, etc., Addle-street and Back Emerson-street. Specifications, etc., at the office of Mr Arthur G. Bradshaw, Borough Surveyor.

OCTOBER 17.—**Preston.**—STREET WORKS.—The Corporation invite tenders for the works required in levelling, paving, etc., Inkerman-street, from Eldon-street to Brookhouse-street. Specification at the office of the Borough Surveyor, Town Hall, Preston.

OCTOBER 18.—**Cardiff.**—ASPHALT.—The Guardians of Cardiff Union invite tenders for making new asphalt playground at Headquarters Homes, Ely. Specification, etc., of Mr. Arthur J. Harris, Clerk, Union Offices, Queen's-chambers, Cardiff.

OCTOBER 18.—**Methley.**—TRENCHES, ETC.—The Methley U.D.C. invite tenders for digging and filling-in of about 890 yds. of trenches for gas mains, and for fixing lamp standards and lanterns at Watergate, Methley. Specification of the Council's Surveyor, Mr. Thomas Thompson, Red House, Methley.

OCTOBER 20.—**Castleford.**—STREET WORKS.—The Castleford U.D.C. invite tenders for the execution of private street works in Wainwright-street, Castleford, in accordance with the plans and specifications prepared by Mr. Wm. Green, Surveyor to the Council, of whom particulars may be obtained.

✱ OCTOBER 20.—**Hampton Court.**—REDRAINAGE WORK.—The Commissioners of H.M. Works, etc., invite tenders for redrainage work at Hampton Court Palace.

OCTOBER 20.—**Kendal.**—SEWERAGE WORKS.—The Corporation invite tenders for the earthwork in excavation required to be executed in connection with the extensions to their sewage-disposal works. Specification of Mr. F. W. Oxberry, Borough Engineer, Town Hall, Kendal.

OCTOBER 20.—**Worth Valley.**—ASPHALTING.—The Worth Valley Education District Sub-Committee invite tenders for the asphalting to be done at Oakworth, Laycock Council School. Specifications of Mr. B. Leah, Education Office, Bingley.

OCTOBER 25.—**Evesham.**—WATERWORKS.—The Joint Water Committee of the Evesham and Pebworth Rural District Councils invite tenders for extensions to the existing works of water supply. Specification, etc., and drawings of the engineers, Messrs. Willcox & Raikes, 63, Temple-row, Birmingham. Deposit, £5 5s.

OCTOBER 27.—**Finchley.**—RETAINING-WALL, ETC.—The U.D.C. of Finchley invites tenders for the construction of a reinforced concrete retaining-wall, and repairs to culvert, etc., on the Great North-road. Mr. E. H. Lister, Clerk, Council Offices, Church End, Finchley, N.

✱ OCTOBER 27.—**Kensington.**—DEMOLITION.—The Kensington B.C. invite tenders for demolition of six houses.

NOVEMBER 12.—**Leeds.**—SEWAGE DISPOSAL.—The Corporation invite tenders for the following sections of work on the sewage works site at Knostrop: (1) Four screening chambers, with screen-house, and four detritus pits, etc.; (2) a brick and concrete sewer; (3) a brick and concrete storm overflow culvert; (4) brick and concrete retaining-wall; (5) the new pumping-station substructure, the pump sump and storm overflow weir; and (6) works office and laboratory, with gatekeeper's cottage. Specification, etc., of the Sewerage Engineer, Mr. Geo. A. Hart, M.Inst.C.E., 26, Great George-street, Leeds. Deposit, £10.

NOVEMBER 13.—**Ogmore.**—SEWERS.—The Ogmore and Garw U.D.C. invite tenders for providing and laying (*a*) 7,777 lineal yds. of stoneware pipe sewer; and (*b*) 1,688 lineal yds. of cast-iron pipe sewer, in connection with the Gilfach Goch outfall sewer and the subsidiary sewers in the village of Blackmill. Specification, etc., at the Council Offices, Brynmenyn, Glamorganshire. Deposit, £5

Public Appointments.

✱ OCTOBER 18.—ARCHITECT'S ASSISTANT.—The Monmouthshire E.C. invite applications for the above post. Salary, £160 per annum

✱ OCTOBER 23.—ARCHITECTURAL ASSISTANT.—The West Riding E.C. invite applications for the above post. Salary, £120 per annum.

✱ OCTOBER 25.—CLERK OF WORKS.—The Bradford Corporation invite applications for the above post. Salary, 45s. per week.

Auction Sales.

✱ OCTOBER 14.—**Fulham.**—Messrs. Fuller, Horsey, Sons, & Cassell will sell by auction, at the depôt. Contractors' plant, machinery, etc.

✱ OCTOBER 16.—**Wandsworth Common.**—Messrs. Daniel Watney & Sons will sell by auction, at the Mart, freehold properties known as "Burntwood Lodge" and "Collamore."

✱ OCTOBER 16.—**West Norwood.**—Messrs. Daniel Watney & Sons will sell by auction the freehold estate known as the Streatham Grove Estate.

✱ OCTOBER 17.—**Hither Green.**—Mr H. W. Smith will sell by auction, on the premises, the stock of a wholesale ironmonger, etc.

✱ OCTOBER 17.—**Wandsworth.**—Mr. H. W. Smith will sell by auction, on the premises, the plant of a builder and contractor.

✱ OCTOBER 21.—**Wandsworth.**—Mr. H. W. Smith will sell by auction at the L.B. and S.C. Ry. goods siding, Wandsworth Common Station, part of the stock and plant of a builder and contractor.

✱ OCTOBER 23.—**Acton.**—Messrs. Collier & Madge will sell by auction, at the George and Dragon Hotel, freehold building sites.

✱ OCTOBER 29.—**Boxmore.**—Messrs. D. Young & Co. will sell by auction, at the Mart, twenty-three freehold sites.

✱ NOVEMBER 5.—**City.**—Messrs. Fox & Bousfield will sell by auction, at the Mart, several freehold properties.

[Those with an asterisk (*) are advertised in this issue.]

OBITUARY.

Mr. J. D. Webster.

The death, on October 1, is announced of Mr. John Dodsley Webster, of Cairns-chambers, No. 19, St. James's-street, Sheffield, who practised with Mr. John Douglas Webster under the style of Messrs. J. D. Webster & Son. Mr. Webster was elected a Fellow of the Royal Institute of British Architects in 1873; he was Diocesan Surveyor for York, Architect to the Ecclesall-Bierlow Union Guardians, member of the Sheffield Society of Architects and Surveyors, and Chairman during a long period of the Sheffield Children's Hospital, of which he was the last surviving co-founder. We have illustrated his plans and designs of the Henry Wilson memorial church of St. Bartholomew, Carbrook, Sheffield (November 22, 1884), additions to Totley Hall, Derbyshire, for Mr. W. A. Milner (April 21, 1894), and, as submitted, for the Mappin Art Gallery, Sheffield (September 18, 1886, interior view and entrance hall). Mr. Webster was the architect of, in Sheffield, the Archdeacon Favell memorial church of St. Augustine, at Broccobank, and the parochial room in Wiseton-street (1897-1902); Central Hall in Norfolk-street, for the Sheffield Workmen's Union (1898-9); church mission-room, Holbrook; administrative block and outpatients' department, with operating theatre, dispensary, isolation ward, etc., Children's Hospital, Western Bank (1901-3); nurses' home, ophthalmic wards, operation theatre, laundry, mortuary, clinical laboratory, and post-mortem-room, comprising the detached "Centenary House, 1897," for sixty nurses, with separate bedrooms (1896-7), for the Royal Infirmary (1873); memorial in the parish churchyard to the York and Lancaster Regiment, South African campaign, 1899-1902, a granite screen with bronze panels by Messrs. J. Starkie Gardner & Co.; church of St. Cuthbert, Barnsley-road, for the new Fir Vale parish, cruciform on plan, for 750 sittings, in the Early English style, and erected in 1901-5 at a cost of £9,000, with provision for a tower and spire 150 ft. high, at the north-western angle; decoration, carried out by Mr. C. Powell, of the chancel, with the new vestries for the clergy and choir, St. Mark's; and the adaptation of the old Medical School buildings for the School of Cookery and Domestic Science, for the Education Committee. Mr. Webster was the architect of the church of St. Timothy, cruciform on plan, for 600 sittings (1910-11), and of the vicarage house (1898), Crookes; the "Queen's" children's wards, Rotherham Hospital (1898-9); men's infirmary wards with administrative buildings, at a cost of £25,000. Ecclesall Union Workhouse (1898-9); South Rotherham, Handsworth, and Kiveton Park joint infectious diseases hospital, at Aughton, near Sheffield, for, at present, thirty-two beds, in five blocks, with a house for the matron and nursing staff, isolation block, offices, etc. (1903-4), at an estimated cost of £14,301, with £16,000 for the site; mission church, Hackenthorpe; restoration of the churches of St. Winifred, Stainton, near Doncaster (1894-8), and Tickhill, Warwickshire (1884); Board schools for 500 children, Gleadless, Yorks, and for 600 children, Coisley Hill, Woodhouse; mission church and parish rooms, Bridge End, Swinton; enlargement, with new south aisle, Heeley Church, Yorks; school buildings, Leeds-road, Attercliffe, for the Sheffield Friends; and parochial rooms, with large hall, classrooms, etc., Netherthorpe.

M. Dujardin-Beaumetz.

The death, on September 27, is announced of M. Dujardin-Beaumetz, aged sixty-six years, who for many years exhibited pictures in the two Salons, and was Under-Secretary of State for Fine Arts, Paris.

CORRIGENDUM.—In our obituary notice last week (page 354 *ante*) of the late Sir Alfred East, R.A., "LL.D. (Pittsburg)" should have been "LL.D. (Yale)."

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

Per 1000 Alongside, in River.	£	s.	d.
Best Stocks	1	16	0
Picked Stocks for Facings	2	10	0

Per 1000, Delivered at Railway Depôt.

	£	s.	d.		£	s.	d.
Flettons	1	14	0	Best Blue Pressed Staffordshire	3	15	0
Best Fareham Red	3	12	0	Do. Bullnose	4	0	0
Best Red Pressed Ruabon Facing	5	0	0	Best Stourbridge Fire Bricks	4	0	0

GLAZED BRICKS—

Best White, Ivory, and Salt Glzd Str'tch'rs	12	7	6	Double Headers	14	17	6
				One Side and two Ends	18	17	6
Headers	11	17	6	Two Sides and one End	19	17	6
Quoins, Bullnose and 4½ in. Flats	15	17	6	Splays and Squints	17	7	6
D'ble Str'tch'rs	17	17	6				

Second Quality £1 10s. per 1000 less than best.

	s.	d.	
Thames and Pit Sand	7	0	per yard, delivered.
Thames Ballast	5	9	,,
Best Portland Cement	36	0	per ton, ,,
Best Ground Blue Lias Lime	19	0	,, ,,

NOTE—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 14s. 0d. per yard delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. dpt.

STONE.

Per Ft. Cube.

	s.	d.
BATH STONE—Delivered on road waggons, Paddington Depôt	1	7½
Do. do. Delivered on road waggons, Nine Elms Depôt	1	9½
PORTLAND STONE (20 ft. average)—		
Brown Whitbed, Delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2	4½
White Basebed, Delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2	6½

Per Ft. Cube, Delivered at Railway Depôt.

	s.	d.		s.	d.
Ancaster in blocks	1	10	Closeburn Red Freestone	2	0
Beer in blocks	1	6	Red Mansfield Freestone	2	4
Greenshill in blocks	1	10	Talacre & Gwespyr Stone	2	4
Darley Dale in blocks	2	4			
Red Corsehill in blocks	2	3			

YORK STONE—*Robin Hood Quality.*

Per Ft. Cube, Delivered at Railway Depôt.	s.	d.
Scappled random blocks	2	10

Per Ft. Super., Delivered at Railway Depôt.

6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	8
6 in. rubbed two sides ditto, ditto	2	6
3 in. sawn two sides slabs (random sizes)	0	11½
2 in. to 2½ in. sawn one side slabs (random sizes)	0	7
1½ in. to 2 in. ditto, ditto	0	6

HARD YORK—

Per Ft. Cube, Delivered at Railway Depôt.

Scappled random blocks	3	0

Per Ft. Super., Delivered at Railway Depôt.

6 in. sawn two sides landing to sizes (under 40 ft. super.)	2	8
6 in. rubbed two sides ditto	3	0
3 in. sawn two sides slabs (random sizes)	1	2
2 in. self-faced random flags	0	5

SLATES.

Per 1000 of 1200 at Railway Depôt.

In. In.	£	s.	d.	In. In.	£	s.	d.
20 × 10 best blue Bangor	13	2	6	20 × 10 best Eureka unfading green	15	17	6
20 × 12 ditto	13	17	6	20 × 12 ditto	18	7	6
26 × 10 1st q'lity ditto	13	0	0	18 × 10 ditto	13	5	0
20 × 12 ditto	13	15	0	16 × 8 ditto	10	5	0
16 × 8 ditto	7	5	0	20 × 10 permanent green	11	12	6
22 × 10 best blue Portmadoc	12	12	6	18 × 10 ditto	9	12	6
16 × 8 ditto	6	12	6	16 × 8 ditto	6	12	6

TILES.

At Railway Depôt.

	s.	d.		s.	d.
Best plain red roofing (per 1000)	42	0	Best "Hartshill" brand, plain sand-faced (per 1000)	45	0
Hip and Valley (per doz.)	3	7	Do. pressed (per 1000)	42	6
Best Broseley (per 1000)	50	0	Do. Ornamental (per 1000)	47	6
Do. Ornamental (per 1000)	52	6	Hip (per doz.)	4	0
Hip and Valley (per doz.)	4	0	Valley (per doz)	3	6
Best Ruabon red, brown, or bridle (Edw'ds) (pr1000)	57	6	Staffords. (Hanley) Reds or Brindled (per 1000)	42	6
Do. Ornamental (per 1000)	60	0	Hand-made sand-faced (per1000)	45	0
Hip (per doz.)	4	0	Hip (per doz.)	4	0
Valley (per doz)	3	0	Valley (per doz)	3	6

WOOD.

BUILDING WOOD.	At per standard. £	s.	d.		£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	15	0	0	..	16	10	0
Deals: best 3 in. by 9 in.	15	0	0	..	16	0	0

WOOD (*Continued*).

BUILDING WOOD (*Continued*)—	At per standard. £	s.	d.		£	s.	d.
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	12	10	0	..	13	10	0
Battens: best 2½ by 6 and 3 by 6	0	10	0		less than 7 in. and 8 in.		
Deals: seconds	1	0	0		less than best		
Battens: seconds	0	10	0		,,	,,	
2 in. by 4 in. and 2 in. by 6 in.	11	10	0	..	12	10	0
2 in. by 4½ in. and 2 in. by 5 in.	10	10	0	..	11	10	0
Foreign Sawn Boards—							
1 in. and 1½ in. by 7 in.	0	10	0		more than battens.		
¾ in.	1	0	0		,,		
Fir timber: best middling Danzig or Memel (average specification)	At per load of 50 ft. 5	0	0	..	6	5	0
Seconds	4	10	0	..	5	0	0
Small timber (8 in. to 10 in.)	3	17	6	..	4	0	0
Small timber (6 in. to 8 in.)	3	5	0	..	3	10	0
Swedish balks	2	12	6	..	3	0	0
Pitch-pine timber (30 ft. average)	6	0	0	..	7	0	0

JOINERS' WOOD.	At per standard.						
White Sea: first yellow deals, 3 in. by 11 in.	26	0	0	..	27	0	0
3 in. by 9 in.	24	0	0	..	25	0	0
Battens, 2½ in. and 3 in. by 7 in.	18	10	0	..	19	10	0
Second yellow deals, 3 in. by 11 in.	21	10	0	..	22	10	0
,, ,, 3 in. by 9 in.	20	0	0	..	21	0	0
Battens, 2½ in. and 3 in. by 7 in.	15	0	0	..	16	0	0
Third yellow deals, 3 in. by 11 in. and 9 in.	16	0	0	..	17	0	0
Battens, 2½ in. and 3 in. by 7 in.	14	0	0	..	15	0	0
Petersburg: first yellow deals, 3 in. by 11 in.	23	0	0	..	24	0	0
Do. 3 in. by 9 in.	20	0	0	..	21	0	0
Battens	15	0	0	..	16	0	0
Second yellow deals, 3 in. by 11 in.	17	10	0	..	18	10	0
Do. 3 in. by 9 in.	16	0	0	..	17	0	0
Battens	12	10	0	..	13	10	0
Third yellow deals, 3 in. by 11 in.	14	0	0	..	15	0	0
Do. 3 in. by 9 in.	13	10	0	..	14	10	0
Battens	11	10	0	..	12	10	0
White Sea and Petersburg—							
First white deals, 3 in. by 11 in.	16	10	0	..	17	10	0
First white deals, 3 in. by 9 in.	14	10	0	..	15	10	0
Battens	13	0	0	..	13	10	0
Second white deals, 3 in. by 11 in.	14	10	0	..	15	10	0
Second white deals, 3 in. by 9 in.	13	0	0	..	14	0	0
Battens	12	0	0	..	12	10	0
Pitch-pine: deals	25	0	0	..	26	10	0
Under 2 in. thick extra	0	10	0	..	1	0	0
Columbian or Oregon Pine, best quality	23	10	0	..	26	0	0
Yellow Pine—First, regular sizes	50	0	0		upwards.		
Oddments	35	0	0		,,		
Seconds, regular sizes	36	0	0		,,		
Oddments	31	0	0		,,		
Kauri Pine—Planks per ft. cube	0	5	6	..	0	6	6
Danzig and Stettin Oak Logs—							
Large, per ft. cube	0	3	0	..	0	3	9
Small ,, ,,	0	2	6	..	0	3	0
Wainscot Oak Logs, per ft. cube	0	7	3	..	0	9	0
Dry Wainscot Oak, per ft. super. as inch	0	0	10	..	0	1	2
¾ in. do. do.	0	0	9	..	0	1	0
Dry Mahogany—Honduras, Tabasco, per ft. super, as inch	0	0	10	..	0	1	3
Selected, Figury, per ft. super. as inch	0	1	6	..	0	2	6
Cuba Mahogany	0	1	4	..	0	2	6
					upwards.		
Dry Walnut, American, per ft. super, as inch	0	0	10	..	0	1	2
French, "Italian," Walnut	0	0	10	..	0	1	4
Teak, per load (Rangoon or Moulmein)	20	10	0	..	26	0	0
Do., do. (Java)	19	0	0	..	22	10	0
American Whitewood planks, per ft. cube	0	5	6	..	0	6	6
Prepared Flooring, etc.—	Per square.						
1 in. by 7 in. yellow, planed and shot	0	14	6	..	0	18	0
1 in. by 7 in. yellow, planed and matched	0	14	9	..	0	18	0
1¼ in. by 7 in. yellow, planed and matched	0	17	6	..	1	3	0
1 in. by 7 in. white, planed and shot	0	14	0	..	0	16	0
1 in. by 7 in. white, planed and matched	0	14	3	..	0	16	6
1¼ in. by 7 in. white, planed and matched	0	16	6	..	0	8	6
¾ in. by 7 in. yellow, matched and beaded or V-jointed boards	0	12	6	..	0	15	0
1 in. by 7 in. ,, ,,	0	15	0	..	0	18	6
¾ in. by 7 in. white ,, ,,	0	12	0	..	0	14	0
1 in. by 7 in. ,, ,,	0	14	6	..	0	16	6

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London or delivered Railway Vans, per ton. £	s.	d.		£	s.	d.
Rolled Steel Joists, ordinary sections	9	0	0	..	10	0	0
Compound Girders, ordinary sections	11	0	0	..	12	0	0
Steel Compound Stanchions	12	0	0	..	13	0	0
Angles, Tees, and Channels, ordinary sections	11	0	0	..	12	0	0
Flitch Plates	11	0	0	..	12	0	0
Cast Iron Columns & Stanchions, including ordinary patterns	8	10	0	..	9	0	0

METALS.

IRON—	Per ton, in London. £	s.	d.		£	s.	d.
Common Bars	9	0	0	..	9	10	0
Staffordshire Crown Bars, good merchant quality	6	5	0	..	9	15	0
Staffordshire "Marked Bars"	11	0	0	..	—		
Mild Steel Bars	9	5	0	..	9	15	0
Hoop Iron, basis price	10	0	0	..	—		
,, ,, Galvanised	17	10	0	..	—		

(* And upwards, according to size and gauge.)

Sheet Iron Black—							
Ordinary sizes to 20 g.	10	5	0	..	—		
,, ,, 24 g.	11	5	0	..	—		
,, ,, 26 g.	12	15	0	..	—		
Sheet Iron, Galvanised, flat, ordinary quality—							
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	15	10	0	..	—		
Ordinary sizes to 22 g. and 24 g.	16	0	0	..	—		
Ordinary sizes to 26 g.	17	0	0	..	—		
Sheet Iron, Galvanised, flat, best quality—							
Ordinary sizes to 20 g.	18	10	0	..	—		
,, ,, 22 g. and 24 g.	19	0	0	..	—		
Ordinary sizes to 26 g.	20	10	0	..	—		
Galvanised Corrugated Sheets—							
Ordinary sizes, 6 ft. to 8 ft. 20 g.	15	0	0	..	—		
Ordinary sizes, 22 g. and 24 g.	15	5	0	..	—		
Ordinary sizes, 26 g.	16	15	0	..	—		
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	12	10	0	..	—		
Best Soft Steel Sheets, 22 g. & 24 g.	13	10	0	..	—		
Best Soft Steel Sheets, 26 g.	15	10	0	..	—		
Cut Nails, 3 in. to 6 in.	11	0	0	..	11	10	0

(Under 3 in., usual trade extras.)

LEAD, &c.

	Delivered in London. £	s	d.		
LEAD—Sheet, English, 4 lb. and up	23	15	0	..	—
Pipe in coils	24	5	0	..	—
Soil pipe	27	5	0	..	—
Compo pipe	27	5	0	..	—
ZINC—Sheet—	In casks of 10 cwt.				
Vielle Montagne	27	5	0	..	—
Silesian	28	10	0	..	—

Zinc, in bundles, 1s. per cwt. extra.

COPPER—					
Strong Sheet ..... per lb.	0	1	1	..	—
Thin ,, ... ,,	0	1	2	..	—
Copper nails ..... ,,	0	1	0	..	—
Copper wire ..... ,,	0	1	0	..	—
BRASS—					
Strong Sheet ..... ,,	0	1	0	..	—
Thin ..... ,,	0	1	1	..	—
TIN—English Ingots .. ,,	0	1	11	..	—
SOLDER—Plumbers' .. ,,	0	0	10	..	—
Tinmen's ..... ,,	0	1	1	..	—
Blowpipe ..... ,,	0	1	3	..	—

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.*

Per Ft. Delivered.

15 oz. thirds	2½d.	26 oz. fourths	3¾d.
,, fourths	2d.	32 oz. thirds	5½d.
21 oz. thirds	3½d.	,, fourths	4½d.
,, fourths	3d.	Fluted Sheet, 15 oz.	3d.
26 oz. thirds	4½d.	,, 21 oz.	4d.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.*

Per Ft. Delivered.

¼ Rolled plate	2¼d.	Figured Rolled, Oxford Rolled, Oceanic, Arctic, Muffled, and Rolled Cathedral, white	3½d.
5/16 Rough rolled and rough cast plate	2¾d.	Ditto, tinted	5d.
¼ Rough rolled and rough cast plate	3d.		

* Not less than two crates.

OILS, &c.

		£	s.	d.
Raw Linseed Oil in pipes	per gallon	0	2	2
,, ,, ,, in barrels	,,	0	2	3
,, ,, ,, in drums	,,	0	2	5
Boiled ,, ,, in barrels	,,	0	2	5
,, ,, ,, in drums	,,	0	2	8
Turpentine in barrels	,,	0	2	7
,, in drums	,,	0	2	9
Genuine Ground English White Lead, per ton (In not less than 5 cwt. casks.)		30	15	0
Red Lead, Dry	per ton	28	0	0
Best Linseed Oil Putty	per cwt.	0	10	0
Stockholm Tar	per barrel	1	12	0

VARNISHES, &c.

	Per gallon. £	s.	d.
Fine Pale Oak Varnish	0	8	0
Pale Copal Oak	0	10	6
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of Churches	0	14	6
Fine Elastic Carriage	0	12	9
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	10	0
Finest Pale Durable Copal	0	18	6
Extra Pale French Oil	1	1	0
Eggshell Flating Varnish	0	18	0
White Pale Enamel	1	4	0
Extra Pale Paper	0	12	0
Best Japan Gold Size	0	10	0
Best Black Japan	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	0
Berlin Black	0	16	0
Knotting	0	10	6
French and Brush Polish	0	10	0

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 6 *p.m. on Wednesday.* [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.* unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

BROMLEY.—For the erection of a new police-station at Bromley. Mr. J. Dixon Butler, F.R.I.B.A., Surveyor to the Metropolitan Police District, New Scotland-yard, S.W. Quantities by Messrs. Thurgood, Son, & Chidgey, 8, Adelphi-terrace, Strand, W.C.:—

Knight	£12,999	F. P. Duthoit	£12,063
Wiltshire & Son	12,900	Fairhead & Son	11,962
Mitchell & Son	12,850	Thomas & Edge	11,888
Arnaud & Son	12,832	Adamson & Son	11.875
Crossley & Son	12,750	Prestige & Co.	11,822
Lawrence & Son	12,425	Grover & Son	11,674
Graham & Sons	12,390	Smith & Sons	11,625
H. Kent	12,163		

DROITWICH.—For erection of twelve workmen's cottages in Vines-lane, for Corporation:—

Jones & Tranter* £2,019 3 7

DUBLIN.—For erection of forty-eight three-room two-story cottages on the Lisburn-street area, for the Dublin Corporation:—

A. Fraser & Co.* £7,900

GLOUCESTER.—For alterations at Gloucester School of Domestic Science:—

F. W. Peer, Gloucester* £749

GOSFORTH.—For water extension, for the Whitehaven Rural District Council:—

Pipes.

Staveley Coal and Iron Co., Chesterfield* £492 5 0

Laying Pipes.

A. Watson, Gosforth* 197 1 6

HULL.—For footways in St. Mark's-street, for Hull Corporation:—

G. Curtis* £385 9 1

HULL.—For carriageways in St. Mark's-street and Mason-street, for the Hull Corporation:—

Trinidad Coke Asphalte Paving Co.* ..... St. Mark's-street £1,583 6 6; Mason-street £832 6 6

LLANTRISANT (Glam.).—For adding to and remodelling the old school, for the Glamorgan County Council. Mr. D. Pugh-Jones, F.S.I., County Architect, Cardiff:—

W. A. Jones, Bridgend £1,724 13 8

LINSLADE.—For proposed additions to St. Barnabas Church, Linslade, Leighton Buzzard, Bucks. Mr. G. H Fellowes Prynne, F.R.I.B.A., architect. Quantities by Mr. R. Henry Hale, F.S.I., 6, Queen Anne's-gate, S.W.:—

Goddard & Sons	£1,596 0 0	Webster & Cannon	£1,318 0
H. P. Dawson	1,492 15 3	T. Yirrell	1,298 0
W. J. Dickens	1,418 0 0	Schooley & Sons	1,194 0
J. Honour & Sons	1,394 0 0	Franklins, Ltd., Deddington*	1,137 10
A. W. Bowman	1,373 10 0		

MALTBY.—For making up Cross-street, for the Rotherham Rural District Council:—

R. Snell* £175

OGMORE VALE (Glam.).—For remodelling the old school (mixed) into a boys' school, for the Glamorgan County Council. Mr. D. Pugh-Jones, F.S.I., County Architect, Cardiff:—

W. C. Shail, Llandaff £2,150

PAISLEY.—For restoration work at Paisley Abbey, for the Restoration Committee:—

Mason Work.

W. & J. Taylor, Glasgow* £37,692 12 5

Wright Work.

Wylie & Lochhead, Ltd., Glasgow* ... 758 7 11

Plumber Work.

A. Forsyth & Son, Paisley* 1,634 9 1

Glazier Work.

W. Meikle & Sons, Glasgow* 339 6 1

PERRY BAR.—For erection of new school, for Staffordshire Education Authority:—

H. Willcock & Co., Wolverhampton* £1,685

REIGATE.—For brickwork in connection with electric generating station, for the Reigate Town Council:—

E. Worssell* £231

SIRHOWY.—For new Elementary School at Sirhowy, Mon., for Monmouthshire Education Committee. Mr. John Bain, F.R.I.B.A., Architect, County Council Offices, Newport, Mon.:—

C. Coake	£9,003	C. H. Reed	£7,973
J. G. Thomas & Sons	8,864	G. F. Leadbeater	7,900
W. Edwards	8,797	J. Jenkins, Ltd., Newport*	7,750
O. Newcombe	8,603		
R. Jones	8,099		

SWANSEA.—For erection of a garage, premises, and showrooms, etc., in Dillwyn-street. Mr. C. T. Ruthen, architect, Heathfield-street, Swansea. Quantities by architect:—

T. Richards	£4,800	H. Billings & Sons	£4,600
Lloyds Bros.	4,800	D. Jenkins, Ltd.*	4,500
J. & F. Weaver	4,750		

[All of Swansea.]

WELWYN.—For new sewer on St. Alban's road, for Rural District Council:—

G. B. Trentham* £139 10

Ham Hill Stone.
Doulting Stone.
Portland Stone.
The Ham Hill and Doulting Stone Co., Limited
(Incorporating the Ham Hill Stone Co. and C. Trask & Son, The Doulting Stone Co.).
Norton, Stoke-under-Ham, Somerset.
London Agent:—Mr. E. A. Williams, 16, Craven-street, Strand.

Asphalte.—The Seyssel and Metallic Lava Asphalte Co. (Mr. H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to Forth Bridge Co. T.N. 2644 Central.

SPRAGUE & CO., Ltd.,
PHOTOLITHOGRAPHERS,
69 and 70, Dean-street,
Soho, W.

OGILVIE & CO., Telephone: DALSTON 1388. Many years connected with the late firm of W. H. LASCELLES & Co., of Bunhill Row.
Mildmay Works, Mildmay Avenue, Islington, N.
EXPERTS IN HIGH-CLASS JOINERY.
ALTERATIONS AND DECORATIONS. ESTIMATES FREE.

Austrian
DRY, FIRST-CLASS, MILD GRAINED
WAINSCOT **Oak**
SYDNEY PRIDAY,
ST. GEORGE'S HOUSE, 6-8, EASTCHEAP, LONDON, E.C.
Depot: Wainscot Sheds, Millwall, E. *T.N.: Avenue 667.*

J. J. ETRIDGE, Jr.
SLATE MERCHANTS. LTD.
EXPERTS IN
SLATING, TILING.
BEST WORK ONLY.
Telephone: Avenue 4940 (two lines), or write—
Bethnal Green Slate Works,
BETHNAL GREEN, LONDON, E.

ASPHALTE
For Horizontal and Vertical Damp Courses.
For Flat Roofs, Basements, and other Floors.
The best materials and workmanship are supplied by
THE
French Asphalte Co.
Whose name and address should be inserted in all specifications.
For estimates, quotations, and all information Apply at the Offices of the Company,
5, LAURENCE POUNTNEY HILL,
CANNON STREET, E.C.

EWART'S
"EMPEROR"
Write to-day for Catalogue 55.
Established 1834.
Telephone: 2570 NORTH.
Telegrams: "GEYSER, LONDON."
APPRECIATIONS.
"A perfect success. My builder tried every cowl he knew of, but nothing cured till he fixed your 'Emperor.'"
"Absolutely successful. Cured where all other cowls had failed. Am recommending the 'Emperor' to everyone with a smoky chimney."
"Ewart's 'Emperor' cowl has cured our smoky chimneys. We now have over a hundred fixed, and all have cured."
EWART & SON, Ltd.,
346-350 Euston Road, London N.W.
SMOKE-CURE